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POLICY ISSUES AND ALTERNATIVES FACING THE CANADIAN HOG INDUSTRY



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POLICY ISSUES AND ALTERNATIVES FACING THE CANADIAN HOG INDUSTRY

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1986

Agriculture Canada
Canadian Pork Council

The findings of this study are the personal responsibilities of the authors and, as such, have not been endorsed by the Canadian Pork Council nor Agriculture Canada

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The authors, of course, accept full responsibility for the results contained in this report. Let there be no doubt, however, that the virtues of the report reflect the contributions of many dedicated and thoroughly professional people with whom the authors worked during the past six months.

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FOREWORD

For every hog produced and processed in Canada, a whole set of economic activities is generated within the national economy.

Technological innovations and improved efficiency measures have been adopted at the farm level and throughout the processing and distribution system. The agricultural supply sector provides millions of dollars worth of inputs and services annually to the 50 000 farmers involved in hog production. Within the past 10 years, \$1.3 billion has been spent on capital investment and repairs in the slaughtering and processing industry.

The industry produces a wide range of high value-added products each year to meet the variety of preferences of 25 million Canadian consumers. During the past decade, 2.9 million hogs and more than 2 billion pounds of pork have been exported abroad, mainly to the U.S. and Japan. More than 33 000 persons are employed in the slaughtering and processing industry and many thousands more are employed in related sectors providing goods and services to that industry.

In general, the hog/pork sector is an important part of the Canadian agricultural industry, with a growing importance in the international marketplace.

This is not to suggest that the Canadian hog/pork industry has been without serious concerns, as the following analysis will indicate. But the Canadian hog/pork industry has developed a fundamental strength and resiliency that should not be overshadowed by its problems.

In assessing the various policy alternatives for the future, Canadian hog producers can build a permanent camp on the high plateau they reached during the past decade, or they can set out to scale new heights. They can focus on the problems and issues facing their industry, or they can respond to the emerging challenges and opportunities available to them.

Perhaps the fundamental challenge has been best expressed by the eminent philosopher John Dewey:

It is not sheer revolt against things as they are which stirs human endeavour to its depths, but the vision of what might be and is not.

The vision of "what might be" could very well be the guiding philosophy in the search for appropriate future policies for the Canadian hog industry. This is the basic challenge facing Canadian hog producers in the years ahead.

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CHAPTER 1: INTRODUCTION

On September 26, 1985, the Canadian Pork Council (CPC) submitted to the federal Department of Agriculture a proposal for the study of specific market organization alternatives for the Canadian hog sector.

The primary impetus for such a study was twofold. First there were a series of events that led the CPC to foresee growing uncertainty arising from policy development unfolding in both international and national markets, consolidation in the pork processing industry, and recent weakening of domestic consumer demand. Secondly, CPC board-level discussions on supply management as a marketing option for the Canadian hog sector and the lack of national consensus on its relative merits had been going on sporadically.

Agriculture Canada agreed that an examination of the industry, with a primary focus on the hog sector, should take place. A decision was reached that it would include a review of the developments leading to the current position of the sector and an exploration of alternative marketing systems for obtaining fair returns to producers and for permitting an informed and balanced consideration of any modification that it would be appropriate to suggest to the current situation. It was also agreed that a specific part of this hog sector study, namely that concerned with comparing relative merits of alternative marketing systems for hogs produced in Canada, would be prepared by two independent analysts. These two analysts were then invited to submit a joint proposal (see Appendix A).

The objective of the study, as specified in the joint proposal submitted by the analysts, is neither to consider nor to recommend a particular marketing option as being the most desirable one for hog producers to pursue. It is rather to review and to compare the most relevant technical, economic and financial considerations and the implications for the production potential and prices (level and variability) for hogs of a limited number of marketing options. These options were to be selected from a list of relevant, consistent and analytically acceptable ones inasmuch as they were deemed conducive to sound examination of clearly identifiable scenarios having some degree of support among hog producers in various regions and/or provinces.

TERMS OF REFERENCE

This study is designed to:

- examine future national and regional prospects for the hog and pork sector over the intermediate term, under current policies and in the current economic environment, taking into account a range of potential market conditions and production costs for the hog industry;
- identify the national and regional impacts on producers, processors and consumers of the following marketing arrangements:
 - i) no stabilization program and no current policy on international trade altogether (the no intervention option),
 - ii) stabilization of the hog subsector
 - a) with full participation from provinces in the tripartite national program (the tripartite option),
 - b) with the current (as of June 1986) combination of national and provincial programs (the status quo),
 - iii) supply management, including alternatives to current agency approaches with costs of production and quotas on hogs (the supply management option);
- examine the compatibility of alternative marketing arrangements with respect to provincial, national and international market regulations; and
- survey other means to improve pricing and marketing efficiency in the hog/pork sector. These may include:
 - i) programs to reduce effective Canadian hog production capacity, such as purchase of facilities for subsequent closure or incentives for reducing breeding stock numbers, without permanent supply management provisions (the reduction of capacity option),
 - ii) creation of additional important Canadian markets for hogs (the new price bases option),
 - iii) establishment of a minimum floating price based on a North American market (the reference market option),

- iv) any other measures identified by the analysts as having some potential for addressing ongoing concerns of levels and/or stability of hog producers' returns.

NATURE, SCOPE AND METHOD OF STUDY

This study drew upon Agriculture Canada's Food and Agriculture Regional Model (FARM) to provide quantitative estimates of impacts of specifically identified hog program options for analytical purposes.¹ Moreover, marketing, trade and commodity policy specialists in Agriculture Canada and in External Affairs provided basic information on price spreads and/or volume and value of hog/pork trade (domestic and international), as well as on domestic legislation, international legal aspects of the General Agreement on Tariffs and Trade (GATT), and on expected foreign reactions to Canadian hog supply management approaches.

It also drew upon data collected and assembled by the CPC on the changing structure of Canadian hog production, on provincial policies and programs for stabilization, on grants to production and/or marketing. Additional information was also gathered by the CPC on provincial hog industries' production outlooks, opportunities, constraints and objectives pursued in the foreseeable future. Provincial hog marketing systems and/or provincial or regional pricing mechanisms were also documented by the CPC for this study.

A series of primary topics and of secondary studies were identified by the two analysts as the basic requirements for a full investigation of the range of marketing policy options facing the hog industry. The series of secondary studies was requested as background material (Appendix B). Unfortunately, time and budgetary constraints did not allow the use of enough supporting research capacity to conduct a detailed analysis for all the requested secondary studies. Top priority was therefore assigned to the policy analysis of the Japanese domestic and import programs relating to hog and pork and their implications for Canadian hog/pork trade.

ORGANIZATION OF THE REPORT

This report consists of five parts. Part I covers the background elements surrounding the Canadian hog and pork processing sectors. Chapter 2 deals with recent structural changes in

the hog production sector, while Chapter 3 describes a few of the important structural changes which have taken place since the early 1970s in the marketing and processing levels of the pork industry. Chapter 4 provides a description of relevant factors to be taken into account in sorting out the most important international aspects of the Canadian hog/pork industry, while Chapter 5 examines interprovincial movement of hogs and pork products in Canada. Chapter 6 focuses on the various provincial pricing mechanisms currently used in the industry.

Part II spells out provincial and federal hog policies or programs in Canada. In particular, Chapter 7 reviews and describes federal government policies and programs as they evolved, mostly during the last two decades, while Chapter 8 covers those of the provincial governments. Chapter 9 summarizes the evolution of the recent tripartite red meat policy. Chapter 10 summarizes background material as well as policy issues by spelling out ways in which the Canadian hog/pork industry might view itself as having reached a very important crossroad since the early 1980s.

Part III sets out a framework for the analysis of policy alternatives in the Canadian hog/pork industry. Salient features of the competitive market are reviewed in Chapter 11, while those of workable competition in the marketplace are put in perspective in Chapter 12. Then basic features of price support policies in general are discussed in Chapter 13, before those of supply management and administered pricing, which are considered in Chapter 14. Then Chapter 15 provides an interpretation of these issues within the Canadian constitutional and political framework.

Part IV describes the results of the evaluation of policy alternatives retained in this study. Each scenario is first calculated backward in a flashback comparison over the historical perspective covering the 1975-85 period and a chapter is devoted to each one of the scenarios. These scenarios go in turn from status quo (Chapter 17), to free market (Chapter 18), and finally to supply management (Chapter 19). Secondly, each scenario is then projected into the immediate future (1986-91), each set of different situations covered being the subject of a chapter (Chapters 20 to 25).

Finally Part V summarizes the most important aspects of the evaluation of policy alternatives by way of a policy overview and spells out concluding observations.

Part I

The Background

CHAPTER 2: STRUCTURAL CHANGES IN THE PRODUCTION SECTOR OF THE HOG INDUSTRY

This chapter deals with structural aspects of hog production and of pork processing and consumption as they evolved in Canada, especially since 1966. It summarizes changes in structural aspects of hog production at the national, regional and provincial levels while focusing on dominant issues such as economies of size, the cyclical and seasonal variability of production, and some financial and risk dimensions of hog farming enterprises. It also puts in contrast some of these changes with those that took place in the U.S. hog production.

In describing current environmental, structural and, to a lesser extent, behavioral and performance features of the hog production sector and the basis of its evolution to its current state, primary dependence had to be placed on currently available research and on secondary data. Unfortunately the most recent data on changes in the structural aspects of the Canadian hog sector since the early 1980s were not available for this study because it had to be assembled before access to the 1986 census was possible.

HOG PRODUCTION: PROVINCIAL, REGIONAL AND NATIONAL CHARACTERISTICS

Canadian hog production in perspective

The Canadian hog industry reached the milestone of 5 million head on farms at the end of the 1950s and more or less quietly settled there for a while. It produced almost the same amount of pork during the mid-1970s as it did in the early 1960s. This aggregated dimension suggests the level of production changed very little between 1960 and 1976 (Table 2.1),* but such was not the case. The total size of hog production in Canada in fact went rapidly from this plateau of 5 million to a little more than 8 million head from the early to the late 1960s, and then shrank back to a low of 6 million head by the middle of the 1970s. It then

rapidly took off from there to pass another milestone of a 10 million head peak in the early 1980s.

Otherwise, it now bears very little similarity to the industry of 25 years ago when fewer than 225 000 Canadian farmers produced 5 million hogs in very small enterprises, mostly in mixed farming operations.

In contrast to the U.S. sector, which has been turning out about the same amount of pork for a little longer than the last decade, the Canadian hog industry expanded production capacity to a very significant extent during the second half of the 1970s (Nelson and Van Arsdall, 1984). This is its first salient distinctive feature, which should be put in a proper geographical and historical perspective.

Changing location of hog production: Long-term profile

Except for cyclical adjustments, the hog population in Canada has grown steadily from 2.4 million head in 1901 to 9.9 million in 1981 (Shumsky, 1985). Inventories in eastern Canada during the 1901-61 period were relatively stable, fluctuating rather narrowly between 2 and 3 million head. But significant increases occurred since 1961, with numbers rising from 2.7 million head in 1961 to 7.4 million head in 1984.

With the gradual development of agriculture in western Canada in the early 1960s, hog numbers increased dramatically between 1901 and 1921 from 0.2 to 1.1 million head, rising to a plateau of 3.2 million head around 1941, and then to a record 4.1 million head in 1971, recovering from a trough of 2.1 million head in 1966.

Recurring and wide fluctuations in the geographic profile of hog production during the past 30 years have been much more important in Canada than in the U.S. In the U.S., hogs are produced in every state, but mostly in or near concentrated production regions. The Corn Belt - Lake states and Northern Plains accounted for 78% of total U.S. hog production both in 1950 and 1980 (Van Arsdall and Gillian, 1979).

* tables and figures appear at the end of each chapter

This seemingly perennial regional imbalance of Canadian hog production compared with the more stable U.S. situation is a second distinctive feature of the Canadian industry.

Sharing in total agricultural gross income: The 10-10 plateau

For many decades, the hog industry in Canada had been a reliable but slightly declining source of farm income, aside from cyclical adjustments. The hog sector did not in fact quite keep pace with most other agricultural sectors between 1950 and 1980 in generating cash receipts from farm marketings (Table 2.2). But in recent years, it has suddenly gained so much momentum, compared with the rest of the agricultural sector, that it has captured 10.5% of total national agricultural receipts. This trend should be contrasted with that in the U.S., where farm cash receipts from hog production in 1981 totaled U.S. \$9.8 billion, which is only about 7% of total U.S. farm receipts.

The 4.9-fold increase in Canadian receipts for hogs between 1970 and 1982 was significantly different from the overall increase of agricultural output during the same period. Indeed cash receipts from all farm marketings increased 4.1-fold, due to a combination of increased volume of production and sales, especially for crops, hogs and beef cattle, as well as to inflation. As a result, the share for hogs, which had dropped significantly under the 9% level at the end of the 1970s, was able in 1982 to climb back to the same relative plateau it had reached in the early 1950s. But this time it has outrun the 10% mark, with actual inventories at a record level of more than 10 million head.

Perhaps the best way of summarizing the present position of the hog industry is to describe it as a 10-10 plateau situation, with hog sales approximately equal to 10% of total farm sales and farm inventories of about 10 million head.

Other dominant structural changes

Since 1950, numerous hog/pork industry observers have predicted massive changes in structure and organization of hog production throughout North America. Some of them believed that these changes would follow the lines of the broiler industry. Others predicted the hog/pork sector would follow its own path. The fact of the matter is that the latter were proven right.

In this section, for the sake of brevity, only the dominant changes that have more or less quietly transformed the Canadian hog sector during the 1951-86 period are analyzed. Those considered are issues related to economies of size, cyclicity and seasonality of production and some financial and risk dimensions of hog farming enterprises. It is indeed impossible for us to do full justice to the rich history of the development of the hog/pork industry throughout all regions of Canada. We must also deplore the fact that the Canadian hog/pork sector lately has not attracted as much attention as its U.S. counterpart, which tends to gain increased attention from so many leading analysts.¹

CHANGES IN SIZE OF FARMS

Perhaps the most significant changes in the hog sector in Canada occurred between 1971 and 1981. More precisely they seem to have been the most significant and encompassing between 1976 and 1981 when the average size of typical Canadian hog farms almost doubled in five years. Moreover, this drastic expansion of hog farms units did not sweep all provinces at the same pace, the largest changes being observed in Quebec and perhaps the least significant in Saskatchewan (Table 2.3).

Most of these spectacular changes had been in the making for quite a long time. Some of them had even been accurately predicted for some time.²

Since 1951, the proportion of hogs held by farms with 123 head or more has tended to increase while herd sizes of 122 head or fewer have dramatically dropped (Table 2.4). But this phenomenon of growth in size of both typical and perhaps also of atypical units can in turn be split into two expansion segments. As already pointed out, it took place mostly between 1976 and 1981. But a first significant and encompassing change had taken place between 1966 and 1971 when the proportion of farms reporting 123 pigs or more went from 5.3% to 12.1%, while the average size of all Canadian hog farms jumped quite suddenly from 35 to 66 head (Tables 2.3 and 2.4).

By way of digression, it may be argued that changes of such a magnitude, which in addition were clearly not uniformly distributed across regions of Canada throughout the modern period of hog production, may not be exclusively explainable by the introduction of new technologies and/or farming know-how. This is the view retained in this study. Indeed it may be assumed that hog

stabilization programs as well as some forms of market organization within the hog sector itself in some provinces may also have contributed significantly to form an environment favorable to such changes, notably by allowing these farmers to share risks and uncertainty of their investments with other partners in the hog/pork sector or with the federal and provincial governments involved. This is a very important subject matter in its own right. It is addressed in Part III of this report.

The more revealing changes which have taken place since 1966, most especially since 1976, may be seen in the tabulation of hog population by various categories of farm size (Table 2.5). Canada's hog sector seems to have reached a stage where it has, at one extreme, still a large proportion of producers accounting for a small and apparently still declining percentage of its animal population while, at the other extreme, a small but still growing proportion of farmers accounts for a rapidly increasing number of pigs.

Farms with 100 hogs, representing a third (33.5%) of total hog population in 1971, dropped rapidly and steadily to 18.9% in 1976 and to 9.0% in 1981. This group can be more safely labeled the traditional segment of the Canadian hog sector. Only one hog in 10 was still held by these very small hog units in 1981. However, these inventories represented 84% of the farms reporting hogs in 1971, compared with 81.4% in 1976 and 69.8% in 1981. Thus, even if this traditional segment of the hog sector has shrunk significantly between 1981 and 1986, one must continue to assume that this heterogeneous group of hog producers will remain a not insignificant part of the Canadian hog/pork industry in the near future. Nonetheless it is becoming more and more apparent that forward-looking hog policies in Canada need not focus on the market issues of this particular subgroup, even if hogs as mortgage lifters of years past is still such a real phenomenon on a great number of diversified crop-livestock farms in Canada (Shumsky, 1985).

At the opposite end of the scale, farms reporting more than 1000 hogs accounted for no more than one hog in 10 in 1971. This proportion increased very significantly to 25.0% in 1976 and then to 40.4% in 1981 (Table 2.5). Meanwhile, the relative importance of the number of farms in this category has risen steadily, from less than 0.3% in 1971 to 1.2% in 1976 and then to 3.6% in 1981. This top-of-the-spectrum size group of hog farmers is a difficult one to put a precise label on. It includes quite a large portion of the so-called

mid-size group of hog farmers, with annual production of 200 to 1999 head (Van Arsdall and Nelson, 1985). It also includes some super-size units with annual sales above 5000 head. Unfortunately not much public information is available on hog production from these giant hog farms, which are becoming less atypical, mainly because statistical reports containing data that might be tied to individual producers cannot be published.

It is worth pointing out that the size groups displaying the greatest stability, despite all this, is the subgroup of the so-called mid-size group that produces 251 to 1000 head. The share of total inventories of this subgroup went from 30.7% in 1971 to 38.1% in 1976, compared with 38.9% in 1981. The proportion of farms reporting such inventories rose from 4.7% in 1971 to 7.3% in 1976 and then to 13.8% in 1981. Moreover, recent research on size of farm changes in the Canadian hog sector indicates that each category of size units with more than 501 pigs showed increased percentages of its pig population between 1976 and 1981 (Shumsky, 1985). This reemphasizes the surging importance of inventories held by Canadian farms with herd size of more than 500 hogs between 1976 and 1981. These changes came not only from farms climbing from smaller group sizes to these higher categories but also from further growth in the size of farms that were already in these upper categories in 1976. This raises the extremely important and evolving issue of economies of size in commercial hog and pig production in Canada.

AN EVOLVING ISSUE: ECONOMIES OF SIZE

Measurement of economies of size in hog farming seems quite simple in theory. Yet estimates of optimal sizes of production units and of the shape or their average and/or marginal cost curves are complicated. This is because virtually all smaller hog enterprises plus a fairly large proportion of the large units have remained one of several sizes of enterprises of these farms in most provinces of Canada (Shumsky, 1985; Carter and Chadee, 1986). Carefully designed and regionally comparable research on economies of size as related to numerous important aspects of Canada hog production, such as input and costs, investments in depreciable assets, returns, income taxes paid, and physical price as well as

economic performance measures, has therefore yet to be done in Canada. This presents a considerable obstacle to research.

Some recent U.S. estimates of average costs and returns for varying sizes of hog enterprises are available (Van Arsdall and Nelson, 1985). They cover the major types of hog enterprises (farrow-to-finish, feeder pig production and feeder-pig finishing) in both the dominant north-central and southeast hog regions of the U.S. They are of great interest for the Canadian hog sector as well.

Indeed, because of the free flow of information between Canada and the U.S., technological innovations in the live swine and pork industry in one country are usually readily available in the other. Information on new technology and know-how seems to be exchanged informally among swine producers. Also up-to-date information on research and extension is exchanged among researchers. Moreover, commercial companies are generally eager to sell their materials and equipment to farms in Canada and the U.S. as well as in other industrialized countries. As a matter of fact, many companies operating in both Canada and the U.S. have shown their capacity to quickly adapt new technologies at least companywide (Ghersi, Padilla, Rastoin and Allaya, 1980).

Recent findings in artificial insemination and embryo transplants also lead us to believe that exchange of genetic material between Canada and the U.S. will perhaps become even easier and more common in the foreseeable future. Therefore levels of technology and technical proficiency of commercial hog producers in the two countries do not appear to give to either one a significant advantage in and of themselves.

To put the topic in proper perspective, some of the highlights of the U.S. study may be spelled out. The most significant ones are perhaps the following:

- Economies of size in production (including specific forms of farm marketing) on most types of U.S. commercial hog and piglet farms are substantial and continue to increase for units producing up to 10 000 head;
- Large size alone, however, is no assurance of success;
- Performance varies greatly among hog producers both in physical and in monetary terms for operations of both similar and different sizes;

- Estimates of outcomes in recent years (1983-84) show the greatest differences among smaller producers, with performances increasingly more uniform but still variable as size of enterprise increases; a nonnegligible proportion of small producers display better performances than their larger counterparts but a most significant percentage of the small ones do far worse (Van Arsdall and Nelson, 1985).

A few other conclusions of the U.S. study sound rather astonishing, as read from a Canadian perspective. Perhaps the most astonishing one is noted in the following (Van Arsdall and Nelson, 1985):

Not only did increasingly larger independent hog operations not account for most of the structural adjustments that have taken place in the sector, but also the increasingly larger units are not likely to leave any obvious gaps for others to fill and they seem most likely to dominate the industry in the future. (p. 40)

A few words of caution are suggested here. Structural adjustments now taking shape very rapidly in the U.S. are not unfolding in the same way in the agricultural policy environment in Canada. For instance, lower relative prices of competing products such as poultry meat in the U.S. creates a fiercer competitive environment there than in Canada for pork products at the consumer level. One also has to be careful in comparing most recent U.S. and Canadian farm-level structural changes in the hog sector because of diverging regional agricultural opportunities for farmers in specific locations. One must not forget there is still in Canada quite a lot of diversity in the dominant types of hog farms in each province, despite the recent concentration moves in the sector (Shumsky, 1985; Carter and Chadee, 1986).

Some changes in dominant types between 1971 and 1981 are depicted in general terms in Table 2.6. What is perhaps most important to emphasize here are the strong reasons for believing that these structural changes at the regional and provincial levels are still unfolding under some perceived degree of influence from local conditions for farming alternatives. This view has often been referred to as the basis for explaining many structural regional differences

in Canadian agriculture. It is usually worded in phrases such as follows (Martin, 1981):³

In western Canada, most hog production, which dominantly takes place in areas where meat and feed grains are produced, still tends to be regarded by a majority of producers as a residual market for feed grains, whereas in eastern Canada, where specialized grain production is perhaps less attractive as an alternative than in the West, hog production was perhaps one of few alternatives for entry of new capital during the early and the mid-1970s.

It seems reasonable to argue that this view is perhaps still more apparently appealing and/or coherent with both the rapid speed, the timing and the types of structural changes that took place in the Canadian hog sector than those now happening in the U.S. hog industry. In general terms we believe that economies of size will perhaps become an even greater issue for the rest of the hog/pork industry in most provinces of Canada. Also, because pork remains an important part of the strongly competitive American red meat supply, efficiencies in hog production are and will continue to be important from a public policy standpoint (Martin, 1981; Gilson, 1982).

But the main practical reasons why there seems to be such an important and immediate ground for greater concern on this issue in Canada are threefold.

First there is a lack of solid up-to-date data on economies of size in Canadian hog production. This, combined with the fact that most provincial hog policies have had rather stable upper limits on farm size of their own (most of which differ from one province to another) as an implicit if not explicit target for "ideal" hog production farm sizes, seems to indicate that there is a real research need in this area. This need calls for directly raising the question as to whether or not currently prevailing upper limits set up by government policies and/or stabilization programs in the hog sector still rest on sound economic bases.

Secondly, super-size specialized hog producers in Canada may be in a better position than small ones to obtain information and to gauge relevant economic conditions for managerial purposes. This is the domain of the so-called "monetary"

and "marketing" economies of size. These economies of size have not apparently been investigated to any significant depth in Canada, despite the fact that all major existing stabilization programs for hog producers, including tripartite programs involving the federal government, are voluntary. This is rather surprising, since some proportion of increases in volume of hog production in Canada must have come from producers with a significant share of "uninsured" animals, even in the provinces with the most appealing stabilization programs and without barriers to entry for integrated production and/or for farms exceeding upper limits of production.

Whether the largest producers did, can or will adjust aggregate production to increase supply price stability is another matter in itself.

Thirdly, provincial ministries of Agriculture, at times with informal if not formal support from federations of hog producers, seem to have favored the development of specific types and/or categories of size units viewed as a "sound" size of hog farms.

In summary, economies of size in Canadian hog farming have yet to be thoroughly analyzed, perhaps in close relationships with the other structural changes now taking place at a hectic pace. Moreover, they are likely to become an increasingly more important issue, especially if hog stabilization programs remain voluntary and if foreseen structural changes in the sizes of U.S. hog farms effectively take place.

OTHER EVOLVING ISSUES: CYCICALITY AND SEASONALITY

Traditionally, modern hog production and marketing has been marked by production and price cycles. Canada and the U.S. have been in the mainstream if not in the center of their making (Petrie, 1974; Carter and Chadee, 1986; Boswell, 1983).

Moreover, commercial hog production has also been historically marked by seasonal variability in most countries, but to varying extents (Tan Yap, 1986). Indeed the susceptibility of baby pigs to extreme winter weather has traditionally caused producers without confinement farrowing lactation nursing to have more farrowing in the spring and fall, with slaughter level peaks corresponding to the same periods as the piglets reach slaughter weight approximately six months after birth. Recent research results

indicate that farrowing in Canada is still closely related to weather conditions, which in turn results in seasonal patterns that reflect heaviest hog marketings during the first quarter and lightest hog marketings in the third quarter. In the U.S. seasonality in hog marketings follows a typically spring farming pattern. Also, it seems that hog marketings in the U.S. vary more seasonally than they do in Canada. Most recent estimates establish seasonal differences in high and low marketing at 12.3% for the U.S., which is about twice as great as those for Canada (Tan Yap, 1986).

Since the early 1950s in particular, with the switch in Canada's pork exports from the British markets to the U.S. following World War II, Canadian commercial hog production seems to have increased and decreased more or less simultaneously with the U.S. hog production cycles up to the early 1980s (Boswell, 1985a).

Nowadays the very large fluctuations in production and prices that characterize these cyclical and seasonal patterns are viewed more and more seriously as a chronic sectoral performance problem not only by the producers themselves but also by the rest of the industry, as the latter becomes more and more sophisticated and industrialized, with regard to operations and marketing. Cyclical and seasonal variability in prices is also viewed, of course, as a strategic factor for daily price adjustments and trade flows across the Canada-U.S. border.

Indeed while no two cycles are strictly alike, the North American cycle usually lasts about four years, with two years of low average slaughter and higher average hog prices, followed by two years of higher average slaughter and lower hog prices. Using calendar years, the North American hog production cycles for the 1961-82 period is illustrated in Table 2.7.

It is not necessary to go over the pure causes of cyclicity in the hog sector. Let it be sufficient to reemphasize the point that all of them boil down to the bare fact that commercial piglet and hog producers make their basic production investment decisions long before the factors influencing prices for pork during that time period will be known.

Hog producers are also responsive to weather conditions in a second way. The effects of weather on the availability and prices of corn,

barley and soybeans has a pronounced impact on immediate profitability of the hog enterprises, sometimes causing significant and fairly sudden changes in the sizes of herds. An example of this was the sharp reduction in U.S. production triggered by the severe drought in the Corn Belt in 1974. Another example of market prospects for grain significantly affecting these hog production cycles on a continental basis occurred in 1969 when the supply of feedgrains increased to such an extent that hog slaughter in North America as a whole was down only one year instead of for two years in a row, as normally expected. The year 1974 presented in a sense the opposite situation of 1969.

Hog cycles in North America have therefore shown their susceptibility to being aborted by shifters of hog supply curves. Moreover, seasonal variations of production nested within the cycle have also shown their own degree of susceptibility to short-term as well as to long-term modifiers. It is indeed generally believed, from recent examinations of structural changes in the U.S. production sector, that as fewer small producers remain, not only will downward adjustments in supply will become sticky but also seasonal variability of production will most likely be reduced to an even greater extent (Nelson and Van Arsdall, 1984).

The existence of these changing degrees of simultaneity and/or relative intensity in national hog cycles in Canada and the U.S. has even given birth in Canada to specific ideas for national and/or regional marketing strategies, with the intended purpose of perhaps taking advantage of these circumstances if and wherever possible. For instance, the alternative for Ontario hog producers of moving counter to the North American hog cycle has already been the object of some attention (Martin, 1976).

The above strictly cycle-related scenario has not been retained for analysis in the present study. This is not because it was felt to lack interest under present circumstances. It is only because it was not specifically sketched out in the set of options submitted by the farmers' provincial groups themselves. But formula pricing of Canadian hogs relative to U.S. price profiles, such as used now in Manitoba, will be discussed in depth in Part IV.

PENDING ISSUES: RELATIVE PROFITABILITY AND FINANCIAL STRESS IN CANADIAN HOG FARMING

By way of summary, during the first part of the 1980s (the 10-10 plateau), which is the focus of this study, hog producers in Canada experienced consecutive years of major losses. Returns from market sales stayed far below total long-run costs. High versus low production, poor versus good returns, and contraction versus expansion of output seem to have been the opposing characteristics of the most recent historical plateaus reached by Canadian hog production since the early 1970s.

Recent calculations of financial risk profiles of Canadian farmers in several agricultural sectors have been made by regrouping farming units on the basis of their debt-to-asset ratios (Ashmead, 1986b; Ashmead, 1986a, pp. 65-69). These calculations indicate that financial stress among Canadian hog producers was still definitely the major ongoing issue of this sector by the end of 1985. They also indicate that this will likely remain a major issue to which more than usual attention has to be paid, in the present study, for prospective investigation of coming years. This notwithstanding, the extent to which the Canadian hog production sector can regain profitability at or near its actual production plateau is one of the outstanding questions considered in the present study.

TABLE 2.1 DISTRIBUTION OF HOG PRODUCTION IN CANADA, BY REGION AND PROVINCE, CENSUS YEARS 1961-85

	1961	1971	1976	1981	1985
(thousand head)					
East					
Atlantic	150.4	251.6	205.8	364.8	424.5
Newfoundland	1.5	14.6	15.7	19.1	17.5
Prince Edward Island	54.9	100.9	78.1	116.8	128.0
Nova Scotia	46.9	79.8	72.7	139.3	155.0
New Brunswick	47.1	56.3	39.3	89.6	124.0
Central	2 598.4	3 745.3	3 517.6	6 606.6	6 720.0
Quebec	912.1	1 383.6	1 613.1	3 440.8	3 335.0
Ontario	1 686.3	2 361.7	1 904.5	3 165.8	3 385.0
East	2 748.8	3 996.9	3 723.4	6 971.4	7 144.5
West					
Prairies	2 542.3	4 031.4	1 991.7	2 648.7	3 370.0
Manitoba	431.5	1 070.6	625.0	875.0	1 200.0
Saskatchewan	640.8	1 145.3	490.4	574.3	705.0
Alberta	1 470.0	1 815.5	876.3	1 199.4	1 465.0
British Columbia	41.6	78.6	53.0	254.9	270.0
West	2 583.9	4 110.0	2 044.7	2 903.6	3 640.0
CANADA	5 332.7	8 106.9	5 768.1	9 875.0	10 784.5

Source: Census of Canada, Agriculture, 1966, 1971, 1976 and 1981, Statistics Canada; Agriculture Canada, Commodity Markets Analysis Division, December 1985.

TABLE 2.2 FARM CASH RECEIPTS FOR HOGS AND ALL FARM COMMODITIES, CANADA, CENSUS YEARS 1951 TO 1981 AND 1982

	Farm cash receipts			Hogs as share of all farm products (%)
	Hogs	All farm products		
	(\$ million)			
1951	190.0	1 740.7		10.9
1961	218.1	2 346.7		9.3
1971	400.0	4 548.0		8.8
1981	1 626.0	18 681.3		8.7
1982	1 956.1	18 711.0		10.5

Source: Census of Canada, Agriculture, 1951, 1961, 1971 and 1981, Statistics Canada; Boswell (1985a).

TABLE 2.3 AVERAGE NUMBER OF HOGS PER FARM REPORTING, CANADA, BY REGION AND PROVINCE, CENSUS YEARS 1951-81

	1951	1961	1966	1971	1976	1981
Prince Edward Island	10	14	29	49	67	110
Nova Scotia	4	12	27	63	88	183
New Brunswick	5	9	12	33	42	106
Quebec	13	19	38	79	178	430
Ontario	19	30	46	77	102	172
East	14	24	41	75	122	239
Manitoba	10	20	31	75	103	172
Saskatchewan	9	16	18	44	40	63
Alberta	19	36	38	69	70	121
British Columbia	8	15	17	29	27	109
West	12	24	29	59	62	109
CANADA	13	24	35	66	91	177

Source: Census of Canada, Agriculture, 1951 to 1981 Statistics Canada.

TABLE 2.4 HOG INVENTORIES BY HERD SIZE, CANADA, CENSUS YEARS 1961-81

	Number of farms reporting					Share of total				
	1961	1966	1971	1976	1981	1961	1966	1971	1976	1981
	(thousand)					(%)				
0 - 17 head	135.8	85.8	52.3	32.0	23.1	60.8	55.6	42.7	50.3	41.5
18 - 122 head	83.1	60.4	54.2	21.2	17.4	37.2	39.1	44.2	33.4	31.2
123 - 527 head	4.5	7.5	14.2	8.3	10.4	2.0	4.9	11.6	13.0	18.6
528 or more	0.0	0.6	1.8	2.1	4.9	0.0	0.4	1.5	3.3	8.7
Total	223.4	154.3	122.5	63.6	55.8	100.0	100.0	100.0	100.0	100.0

Source: Census of Canada, Agriculture, 1961 to 1981, Statistics Canada.

TABLE 2.5 DISTRIBUTION OF HOG INVENTORY AND FARMS REPORTING, BY SIZE OF HERD, CANADA, 1971, 1976 AND 1981

	Hog inventory			Farms reporting		
	1971	1976	1981	1971	1976	1981
(%)						
1 - 19 head	4.8	3.4	1.6	44.7	52.0	43.1
20 - 100 head	28.7	15.5	7.4	39.3	29.4	26.7
101 - 250 head	26.2	18.0	11.7	11.0	10.1	14.8
251 - 500 head	18.5	20.0	16.7	3.5	5.0	8.2
501 - 1000 head	12.2	18.1	22.2	1.2	2.3	5.6
1001 - 2500 head	7.0	15.6	25.4	0.3	1.0	3.0
2501 and more	2.6	9.4	15.0	0.0	0.2	0.6
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: Census of Canada, Agriculture, 1971 to 1981, Statistics Canada.

TABLE 2.6 HOG INVENTORY AND CROPLAND AREA REPORTED BY FARMS WITH HOGS AND CROPLAND, BY PROVINCE, 1971, 1976 AND 1981

	Pig inventory			Cropland area		
	1971	1976	1981	1971	1976	1981
(Number of head per farm)				(%)		
Prince Edward Island	95	95	95	49	35	34
Nova Scotia	78	83	75	23	17	17
New Brunswick	84	87	62	33	21	18
Quebec	87	79	74	28	16	15
Ontario	95	95	94	36	24	25
Manitoba	95	96	90	42	20	18
Saskatchewan	96	97	92	34	17	13
Alberta	95	93	90	42	22	18
British Columbia	66	63	62	19	14	11
CANADA	93	90	84	37	20	17

^a The proportion of total cropland reported by farms with pigs expressed as a share of total cropland reported by all farms in the Census

Source: Martin (1981).

TABLE 2.7 HOG PRODUCTION CYCLES: PRODUCTION AND PRICE LEVELS WITH PERCENTAGE CHANGE FROM YEAR EARLIER, CANADA AND U.S., 1961-86

	Commercial hog slaughter						Hog prices ^b		
	U.S.		Canada ^a		Total		Cycle	U.S.	Canada
	(million head)	(%)	(million head)	(%)	(million head)	(%)		(\$/cwt)	
1961	77.3	-2	7.6	-3	84.9	-2	Low	17.16	27.18
1962	79.3	3	7.7	1	87.0	2		16.82	28.30
1963	83.3	5	7.6	-1	91.4	5	High	15.38	27.30
1964	83.0	n.c.	8.3	9	91.3	n.c.		15.31	26.23
1965	73.8	-11	7.9	-5	81.7	-11	Low	21.30	31.77
1966	74.0	n.c.	7.9	n.c.	81.9	n.c.		23.49	35.14
1967	82.1	11	9.3	10	91.4	12	High	19.37	29.53
1968	85.2	4	9.2	-1	94.4	3		19.19	29.59
1969	83.8	-2	8.7	-5	92.5	-2	Low	23.71	34.69
1970	85.8	2	10.7	23	96.7	5	High	21.95	30.14
1971	94.4	10	11.4	7	105.8	9		18.45	23.67
1972	84.7	-10	11.1	-3	95.7	-10	Low	26.67	34.90
1973	76.8	-9	10.7	-4	87.4	-9		40.27	52.36
1974	81.8	7	10.9	2	92.6	6	High	35.12	47.86
1975	68.7	-16	9.2	-16	77.6	-16	Low	48.32	65.40
1976	73.7	7	9.1	-1	82.8	6		43.11	62.40
1977	77.3	5	9.1	n.c.	86.4	4	High	41.07	59.85
1978	77.3	n.c.	10.1	11	87.4	1		48.49	69.99
1979	89.1	15	12.0	19	101.1	16	High	42.06	65.42
1980	96.1	8	14.1	18	110.2	9		39.48	60.59
1981	91.6	-5	13.8	-2	105.4	-4	Low	44.05	71.34
1982	91.6	-10	13.7	-1	95.9	-9		55.07	84.95
1983	87.6	7	14.1	+3	101.7	6	High	47.71	72.81
1984	85.2	-3	15.2	8	100.4	-1		48.86	74.26
1985	84.5	-1	15.6	3	100.1	n.c.		44.71	70.75
1986 ^c	79.4	-6	14.8	-5	94.2	-6		51.50	83.30

^a Inspected plus uninspected plus live exports to the U.S.

^b Canada: weighted national average all market hogs Can \$ dressed; U.S.: barrows and gilts U.S. \$ live

^c preliminary

Source: Boswell (1985a).

CHAPTER 3: STRUCTURAL CHANGES IN DEMAND AND IN THE MARKETING AND PROCESSING SECTOR

Hog production has remained a particularly appealing sector throughout the 1970s in Canada, not only because of the relative ease of entry but also because of the fairly large multiplier effect it has on the economy (Gilson, 1982, pp. 3-15). Governments are indeed also interested in the hog/pork industry as a whole because it generates a lot of economic activity, especially in the slaughtering and processing phases (Weisberger, 1981; Devine, 1977).

Thus competitiveness in the slaughtering and processing sector and an acceptable degree of sharing in bargaining power between hog producers and the rest of the hog/pork industry are important dimensions if not necessary conditions for the success of any hog stabilization program. They also have large and important policy implications, which will now be briefly explored.

In the early 1960s, the Canadian packing industry, largely the product of native Canadian enterprise and capital, was the largest food processing industry in Canada. It ranked fourth largest among the 40 leading manufacturing industries in dollar volume of sales, and second in expenditures for raw materials (Lasby, 1964). The number of establishments slaughtering and processing livestock was then estimated at 326.

Perhaps a fair summary of its overall situation and of its main problematic issue then is as follows (Lasby, 1964):

A smaller meat packer located in a good livestock producing area and adjacent to a reasonably good consuming area can compete successfully in that area with larger meat packers who, for the most part, are located in or adjacent to large consuming areas.... In the meat packing industry the original raw material units are lacking in uniformity and the final quality of the purchases is not known exactly until the animal is slaughtered and dressed. (pp. 42-43)

Except perhaps for continued very high dominance of national ownership and except for the fact of having maintained its rank as the

fourth largest manufacturing industry in the country, today's industry bears very little resemblance to the industry of 20 years ago when about 50% of the livestock in Canada was being produced within 120 miles of the public stockyards.

DOMINANT STRUCTURAL CHANGES

It must be pointed out at the outset that the economics of determining ideal plant locations, sizes, technologies let alone numbers of plants for all regions of Canada would be the subject of a study in itself. We therefore limit ourselves to general comments mostly drawn from four recent studies.¹

- Improvements in technology, such as development of high-capacity equipment for dressing and processing, faster curing, and better refrigeration, have enhanced the productivity of plants and created incentives for expansion of capacity of most plants, including those that were already in the top size of units in the late 1960s. Thus apparent size economies achievable in this sector gradually came into sight and technological innovation was a major driving force behind structural changes which took place.
- Introduction of vacuum packaging in barrier films has contributed most significantly to change production and marketing patterns by extending shelf life and delivery times on fresh and processed products without freezing. This second driving force behind structural changes also has led to concentration of processing in larger plants with the possibility of nationwide distribution.
- The notion of capacity of the industry has changed through time. Capacity of the industry can indeed be measured at various points in its production processes. Measuring capacity utilization in a sector such as pork processing is therefore difficult, and different analysts use different methods, all involving a good deal of personal judgment (Cooper, 1984). But the slaughter and chilling capacities still

appear to be the most critical parameters for evaluating overall capacity available in the various subsectors within the red meat industry. While no rigorously estimated figures are available, rough estimates obtained in 1984 indicate that pork plants, on average, were operating at 85% of capacity in Canada (DRIE, 1984).

- Since 1960, the number of establishments slaughtering and processing red meat increased very rapidly until 1974, then decreased a little, and then increased again (Table 3.1). Between 1970 and 1981, it seems that Ontario and Alberta had taken a significant leadership in reversing this trend.
- Most recent changes in the sector seem to have been stirred up most significantly by the development of new products. But perhaps still more significant has been the transfer of meat cutting and processing from retail stores and restaurant kitchens to the meat industry itself.
- Value-added by Canadian plants still has a high labor component, despite recent labor-saving technological changes. The meat industry ranked tenth in the late 1970s among all manufacturing industries for expenditures on wages and salaries. Also significant is the fact that wages paid in Canada have been consistently higher than those prevailing, on average, in the entire national food and beverage sector (The Future of the Industry Committee, 1983). Moreover, the difference between average wage earnings (per week) paid in the Canadian meat packing industry, compared with rates paid in its U.S. counterpart, increased in the early 1980s (Table 3.2). Part of the widening differential between Canadian and U.S. wage levels is accounted for by rollbacks in U.S. wages as a result of actions by some U.S. companies to file for bankruptcy under Chapter XII regulations to get out of their labor contracts. These differentials of the early 1980s combined with difficulties encountered recently by a few major Canadian plants in negotiating new labor contracts are believed to have reached a point where the medium-term and/or long-term competitiveness of some Canadian plants could be threatened by units located in the U.S. (Statistics Canada, cat. no. 31-203; U.S. Dept. of Labor).
- The kill-and-cut lines tend to be viewed more and more commonly within the industry as the weakest link in the production processes. This opinion seems to hold even in Ontario where a high proportion of the industry is viewed as an integrated operation.² Killing activities are indeed no longer viewed as a profit generator but rather as a mechanism to bring product for processing in the most convenient and efficient way. They might tend to go back to locations as close as possible to main Canadian hog production regions. This foreseen trend is also contemplated perhaps as a partial solution to the issue of control and reduction of PSS (Porcine Stress Syndrome), which appears to become a more and more serious barrier to further development of both the domestic and export pork markets.
- Historically, the importance of transportation of live animals from the farms has forced older expanding plants to a centralized but diversified format. The number of these large multi-purpose plants will continue to decline. Those still in operation seem to have been reance of transportation of live animals from the farms has forced older expanding plants to a centralized but diversified format. The number of these large multi-purpose plants will continue to decline. Those still in operation seem to have been rearranged continuously to keep them in compliance with revolving sanitary requirements of the Meat Inspection Act. Their managers have nonetheless attempted to incorporate in them advances in packing and packaging technology, with more or less success. Most of these older multi-purpose plants seem to be nearing the end of their economic life in the late 1980s.
- In contrast, the growth in the number of establishments has come from the development of specialized processing plants producing a limited product line, such as various combinations of pork products.
- The number of employees in the sector has increased from 25 900 in 1910 to 35 400 in 1981. But this significant increase in employment has taken place almost totally in smaller and more specialized units. This includes the purveyors to the food service industry as well as specialty sausage processors.

- As seen from a national perspective, the aggregate degree of concentration of the Canadian meat packing industry operating in the early 1980s does not seem to be considered as serious an issue as in some other major industrial sectors (Table 3.3). Moreover, the decline of this ratio since 1965 is viewed as a favorable development for the red meat industry (Table 3.4). But from a regional and/or provincial perspective, the portrait is slightly different. The analysis of local trends in the number of plants and of the main reasons for consolidation and/or closures in the 1970s has shown that, on the buying side of the markets, the structural links between producers and the major meat packers in most provinces could generally be described as oligopsonic in nature (Gilson, 1982; Hawkins and Norby, 1977). The same type of concern has recently been expressed by various well-informed observers in Ontario (The Future of the Industry Committee, 1983). But comments for Ontario are mostly in direct reference to packer-to-retailer selling and/or buying practices as they relate to acquisition of some forms of market power.

An up-to-date (as of September 1986) spot survey of the number of major packing plants currently absorbing the largest phase of hog supply in each province does in fact indicate that local concentration of the industry has already reached the stage of being a leading issue in some provinces.

In Prince Edward Island only one major recently built plant, partly under the ownership of provincial hog producers, is in operation. In Nova Scotia two major packers and two small establishments are killing and processing the bulk of provincial production. In New Brunswick the largest share of provincial hog production is currently shipped to two major establishments located in the province. This implies that only five Maritime plants qualify to be designated as active major packers by Atlantic standards.

In Quebec, two major establishments and three smaller ones receive the bulk of shipments of live animals mainly from Quebec and also from Ontario and New Brunswick. The first three larger establishments in Quebec killed more than 80% of provincial production in 1985 (Charland, 1985; Voisard, 1984). In Ontario, only four packers are now regularly buying live hogs on the Ontario Pork Producers' Marketing Board's central teletype system, compared with five before the U.S. countervailing duty was imposed

on shipments of slaughter hogs from Canada, but mostly from Ontario. This implies that almost two thirds of Canadian commercial hog production fed in Quebec and Ontario combined largely depends on six to seven packers as their closest major buyers (by central Canada standards).

In contrast, Manitoba's hog producers now sell more than half of their production to five major packers (MHPMB, 1986). In Saskatchewan, two major packers account for the largest share of provincial killings. Alberta's situation is perhaps the most difficult one to qualify disputes. But one can safely argue that the largest proportion of hog kills performed by Alberta's packers happens in two major establishments (Horner, 1981). In British Columbia, the largest share of slaughter and/or processing of hogs is handled by one major plant. This in turn means that the largest proportion of western Canada's hog production now has to rely in the active and normal manufacturing activities of about 10 major establishments (by western Canada standards) which kill and/or process the bulk of their production.

Other indicators can also be used to describe the structure of the meat packing industry at the provincial level. For example a recent research study indicated that in 1982 only 11 Canadian establishments had 500 employees or more. Six of those were located in western Canada, four in Ontario and one in Quebec (Ghersi and Bourque, 1985). Another measure of concentration often used is the ratio of value of assets of major establishments compared with all asset values in the relevant sector. In Canada, the sum total of value of assets declared by all establishments in the meat packing industry went from \$1013 billion in 1975 to \$1763 billion in 1981. But the share of the four largest establishments in those assets was 40.5% in 1981, compared with 49.6% in 1975 (Ghersi and Bourque, 1985, Appendix 31). So not all national indicators confirm general trends toward greater concentration in the Canadian industry, but most provincial ones do, at least for the 1970s.

OTHER ONGOING OR FORTHCOMING ISSUES

The Canadian meat packing industry may perhaps be rightfully described as having undergone slow adjustments in the 1970s. Thus it was likely to undergo major rationalization adjustments in the late 1970s and the early 1980s, despite some overcapacity and high interest rates which then prevailed (DRIE, 1984).

What went on in the U.S., meanwhile, perhaps half a decade sooner, was seen as setting the upper trends for future technological and structural changes in Canada. The basic trend in the U.S. has clearly been for kill-and-cut firms to become larger and more specialized, shifting from the older multi-story, multi-species plants to single-story, high-volume plants. The largest plants in the U.S. can now slaughter more than 3 million head per year (Hayenga et al, 1985). But it is commonly believed that the size of the Canadian market does not call for the immediate and systematic adoption of the high-speed production lines which, by virtue of the large markets they service, are being put into place in the most modern U.S. or EEC plants. Most hog slaughtering plants in Canada are said to be inefficient compared with leading U.S. facilities, largely because of scale of operation economies enjoyed by the latter (The Future of the Industry Committee, 1983).

In Canada, most major investments in the slaughtering and meat processing industry were made between 1976 and 1985 (Table 3.5). Investments made during that period were in fact almost twice as large as those made during the previous 15 years. Of course this increase is not quite as large in deflated dollars, especially when price indexes for capital expenditure on plant and equipment by food and beverage industry are used for deflating (Cooper, 1986). It increased by a little more than 300% between 1971 and 1986.

Major investments intended to replace existing plants are contemplated in Canada. For instance the prospective need for a centralized killing facility in Ontario has been brought to the attention of the sector. The planning horizon of such an undertaking seems to have been 1989-94. It has been suggested that such a plant could require a minimum of 12 000 hogs per week and possibly as many as 20 000 head per week to be viable (Crozier and Fearon, 1985). Other major projects are contemplated as well in other regions of Canada. Some of them still seem to be at the stage of feasibility and impact studies.

Meanwhile the fine tuning of slaughter hog marketing operations to better fit the needs of the killing plants has continued. Some related issues have been reactivated as possible solutions to transitory adjustment problems. For example, further improvements in the appropriate scheduling of delivery of slaughter hogs at the plants are seen as a real opportunity to enhance efficiency of the existing largest size of facilities (The Future of the Industry Committee, 1983).

Currently, volumes of delivered hogs vary considerably, in specific times of the year, from expected numbers, particularly early in the week. This creates problematic situations not only for the orderly operation in the assembly yard, but also for the individual producer when his own hogs are precisely those which are not killed the same day.

Some rationalization and modernization is therefore expected to continue in the late 1980s. Profits in the meat processing sector were 7.7% between 1972 and 1978 (seven-year average), compared with 8.4% driving 1979-84 (six-year average), (Statistics Canada cat. no. 61-207; DRIE, 1984; Ghersi and Bourque, 1986).

This rationalization and modernization process is also expected to have a significant effect in some regions. The industry currently is most heavily concentrated in Ontario, Quebec and Alberta. Indeed since this sector has traditionally been characterized by high labor-capital ratios as well as by its fairly high final-demand multiplier for the outputs of other local food and fiber-related industries, the use of public funding to increase the speed and the location of rationalization and modernization of these plants at the local level has been a common feature of this sector (Statistics Canada cat. no. 61-207; DRIE, 1984; Ghersi and Bourque, 1985). In consequence, rates of profitability of total capital (public and private) invested in this sector, especially since 1975, may have been significantly different from the private rates of profits reported in it in various regions of Canada when multiplier effects are taken into account for calculating public benefit-cost ratios.³ More important conflicts may therefore arise between the objectives of limited interference with the rationalization process currently under way, as put forward by the federal government and by a few provinces, and the regional development objectives as seen from the national and/or provincial perspectives.

Finally, the only area of major structural concern which has definitely not been explored both in Canada and in the U.S. is that which might result from emerging technological changes at the retail level in all sectors of the food and fiber industry. There are indeed stronger and stronger indicators that lead well-informed observers to believe that scanning and other technological refinements in measuring retail brand performances in international, national and/or regional markets will ultimately result in what has been coined "guerrilla marketing." These terms are used to designate the

competitive struggle for shelf space carried on more and more at the local level rather than on the regional and/or national levels.

This latest issue raises some new important questions which have yet to be identified, let alone to be seriously investigated.

MARKETING STRUCTURE

The changing characteristics of the hog marketing system in Canada up to the early 1980s has already received research attention in Canada (Gilson, 1982; Child, 1977; Henston and Ricard, 1983). This part of the report draws most intensively on this research while attempting to put its main highlights in present perspective and/or in parallel with the most recent U.S. trends in this matter. It also brings in complementary national and/or regional information.

Canada

The main findings of Gilson's (1982) study can be summarized and supplemented as follows.

Market price

One of the primary issues in the Canadian hog industry since the early 1950s, and perhaps even more so in the last two decades, has been the struggle between hog producers and the meat packers for some forms of proactive and workable competition in the marketplace.

Terminal market

Prior to the introduction of hog marketing boards in Canada, the terminal market was the pivotal and central nucleus of most marketing systems in the country. The terminal market evolved as an integral part of a larger network system which depended on the railways as the main mode of transportation for livestock.

In the early 1960s, about 80% of all livestock in Canada was raised within 120 miles of these public stockyards (Lasby, 1964). Also the country auctions were spread throughout all these principal producing areas. In Ontario, under a compulsory hog marketing scheme all hogs were sold by a teletype auction method.

Direct shipments and private treaties

With the introduction of rail grading for hogs and with the development of the trucking industry, the bulk of the hogs were shipped directly to the packers where prices were negotiated on a

private treaty basis between the packers and the hog producers. This created situations where micro prices paid to individual producers, at any given moment, could be substantially different from macro prices for a specific group of animals both within and across marketing points and/or regions.

Emergence of hog boards

Direct-to-plant shipment of hogs and the perceived lack of bargaining power possessed by the producers then led some of the newly emerging hog marketing boards to develop a more competitive marketing system, while other boards chose the route of developing more direct bargaining strategies with the packers.

Instability of prices

Instability of hog prices (daily, weekly, monthly and along the hog cycle), while correctly perceived as a necessary part of the market-clearing process, has been and still is a source of considerable irritation and/or frustration to hog farmers.

Measures for a competitive system

Over the years, hog farmers adopted several measures in the attempt to make their evolving competitive marketing system perform more effectively from their own point of view. These measures included: the development of cooperative shipping associations and central selling cooperatives to enforce greater competition from inside the central market; cooperative slaughtering and processing plants to enforce greater competition on the demand side; teletype marketing; price pooling; and better price-forecasting models with or without their own rudimentary and/or sophisticated market intelligence reference tools and/or indicators.

Counteracting restrictive competition

Several different approaches were also pursued by hog producers in Canada in parallel attempts to deal with perceived and/or anticipated restricted competition situations in the marketplace. Measures taken along this line include the following: attempts to break down or curtail the growing concentration of buying power in the marketplace through use of the combines legislation; direct competition with the packers through the development of producer cooperatives' packing plants; and development of countervailing power in the marketplace through voluntary central selling producer cooperatives and compulsory marketing boards.

Establishment of hog boards in provinces

The first hog marketing board in Canada came with the establishment of the Ontario Hog Producers' Marketing Board in 1946. Hog producers in seven of the remaining provinces subsequently formed marketing boards. Quebec producers are currently exploring one avenue for setting up a central selling system (FPPQ, 1986). Most recent estimates indicate that about two thirds of the hogs raised in Canada now are marketed through boards or commissions.

In Quebec, in addition to providing supply of feed, many commercial feed mills also have been involved in hog production. These, along with other enterprises in the hog/pork industry, have expanded their enterprises vertically, at times under three distinct forms: auto-integration, financial integration and contractual integration (MAPAQ, 1978). In 1975 about 46% of total hog production in Quebec was produced under contracted arrangements and another 23% under the other forms of integration. The remaining 30% was produced by independent producers (Saint-Louis, 1980; Owen, 1984; Thompson, 1977). By the middle of the 1980s, contractual arrangements were still the most prevalent type of integration in the Quebec hog sector. This integration, with all its forms, still remains the most significant linkage between hog farmers and the rest of the industry in Quebec (Owen, 1984).

Since the integrators often pay a premium on good performance, more significant differences, at a given point in time, may be expected between micro prices and macro prices in the Quebec hog industry than in Ontario, for example. But in reality this view has never been strongly tested, to our knowledge.

Diversity of selling techniques

While all the hog boards and commissions have adopted or want to set up some form of central selling system for hogs, the specific selling and pricing techniques used in each province vary considerably. These techniques range from the teletype selling system in Ontario, the Dutch Clock auction system in Manitoba, the tender acceptance teletype auction system in Alberta, to various types of formula pricing in the other provinces.

This and other research work underlies the important role that the Ontario hog market has historically played in the development of most if not other local and/or provincial marketing

systems for hogs in Canada. The reasons most often mentioned to explain the importance of the Ontario market in this focal and pivotal role include the following:

- Ontario had more than 40% of active country auctions recorded in Canada in the early 1960s (Lasby, 1964).
- On the supply side, OPPMB has gained maturity and "wisdomry" (market intelligence plus neutrality) through the years (The Future of the Industry Committee, 1983).
- On the demand side, a little less than half of hog killings and/or pork processing gravitates around markets originating or passing through Ontario, where pork processors are believed to have reached fairly high degrees of merchandising expertise, as judged by North American standards. It is therefore considered to be a focal point in Canada where the value of final cuts is most likely to be fed back in turn into the prices of primary cuts, and then into prices of carcasses, and then in turn into the price of live animals, as quickly as possible.
- Hog production in Ontario has remained the domain of independent producers (Ontario Department of Agriculture and Food, 1970; Task Force Committee, 1982).

Precisely because of this vital role, which seems to have gained momentum throughout the years, it seems appropriate that more than usual attention is paid to the most recent developments in the Ontario hog marketing system. In 1965, the Ontario board reported 18 buying machines in place. Most recent estimates record that only five major buyers are making a systematic use of it. Some of the most desirable elements of pure competition in this important regional system may perhaps have become reduced to some extent.

Another problem which has apparently surfaced for a short while in the Ontario market is the signs pointing to some partitioning of the overall board system into 10 mini-markets operating within the Ontario market itself. Local specialists feel that locational advantages of particular assembly yards to certain processing plants have come to mean, perhaps more significantly than ever before in present market conditions, that specific slaughter plants were consistently able to outbid others on lots located closest to their units (The Future of the Industry Committee, 1983). Quoting FOB prices was then used as a way to circumvent this problem.

These latest developments in the Ontario hog marketing system, as well as others having taken place in other regional markets in Canada, have not forestalled regional debates over the ever-present controversial issue of East-West hog price differentials with the use of Toronto as a reference market. Indeed perhaps the most controversial and perennial issue, both between the Prairie hog marketing boards and the western meat packers on the one hand, and between the Quebec producer groups and the eastern meat packers on the other, has been the East-West hog price differential on the former side and the Montreal-Toronto price spread on the latter.

The Prairie boards have often debated the position that the hog price differential between Toronto and the western markets, such as Winnipeg and Edmonton, was at times larger than could be justified by transportation and the other transfer costs between the respective markets. The same type of debate has been raised sporadically by some eastern groups of producers, particularly in Quebec (Gouvernement du Québec, 1967; Coopérative Fédérée de Québec, 1970).

One may conclude that research undertaken up to the early 1980s specifically on regional hog price differentials problems in Canada has not yet produced substantive and significatively conclusive evidence on the adequacy or inadequacy of hog price spreads between the Ontario and the western hog markets (Gilson, 1982). This research situation has at times been complicated by the fact that price spreads for processed products frequently did not correspond in any meaningful way with the relative prices of hogs between the eastern and the western Canada markets. Further discussion of this very important issue is postponed and will be again taken on in Chapter 6.

United States

Meanwhile the decline of U.S. terminal markets has also been gradual but very significant (Hayenga et al, 1985). In the early 1980s, some 28 terminals were still operated. But only 13.5% of packers still procured their slaughter hogs through these terminals (USDA, various years).

In summary a majority of hogs have been marketed directly since World War II in the U.S.

The direct purchases (not through terminals or auctions) reached 76.6% of all hogs purchased by packers in the late 1970s.

A small part of U.S. production currently is integrated. It is believed that for intensive integration of the industry to occur in the U.S., there would need to be substantial, unexploited opportunities in one or more parts of the sector, from basic inputs to product marketing. So far it seems that such openings have not been sufficient to attract intensive integration in the hog sector. Increasingly larger independent hog operations have accounted for most of the structural adjustment that has taken place, especially since 1975. These super-size operations are leaving no obvious gaps, it seems, for integrators to fill, and they seem most likely to dominate the industry in the future (Van Arsdall and Nelson, 1985).

CONSUMPTION TRENDS

Per capita consumption patterns of red meats and poultry products have changed significantly in Canada during the past two decades, particularly since the mid-1970s. Except for the soaring expansion in poultry consumption since 1977, the direction of consumption patterns in the U.S. displays general similarities with that in Canada (Table 3.6).

But it is not easy to scratch beneath the surface of such real changes in the marketplace for red meats and to come up with straightforward explanations of what it is exactly that stands behind the most recent declines in pork consumption trends in Canada. It is also difficult to pinpoint the main reasons why these forces acted the way they did.

In this report we have chosen the traditional route of explaining these changes by the most simple theory that still holds, namely, that both the pricing features of the pork sector itself and the external forces which constrain them have had an impact on these short-term variations, but not necessarily in the same directions. One thus has to make the usual fundamental distinction between questions having to do with the responsiveness of demand and supply to changes in own prices (the domain of price elasticities) under given market conditions and questions having to do with other influences (the domain of the so-called supply and demand shifters).

Responsiveness of demand

For simplicity of exposition, it is not critically important, at this stage, to further distinguish between demand for hog at the farm level and demand for pork at the retail level, despite the fact they differ, of course. In trying to compare the situation as it stands now with what it may have been in the early 1960s, we are tempted to sketch Figures 3.1 and 3.2 in order to describe supply and demand curves for pork in Canada.

Unfortunately not much is known about the shape of the relevant national hog/pork demand and supply curves circa 1960. This is why we have drawn them as blurred bands within which the truth of the matter might lie. What is most important, though, is the fact that the circa 1980 supply and demand curves have been drawn here with significantly different angles and positions from those of their counterparts circa 1960.

Available studies of own price elasticities of demand of pork in Canada give estimates of -0.723, -0.954, and -0.651 (see Dadgostar, 1986, for further explanation of their calculation). In turn, Canadian estimates contrast somewhat with some results of studies made in the U.S. showing price elasticities of demand for pork, which appear to have declined very little from a most common estimate of -0.90 before 1965, to a most common parameter of -0.85 since 1965 (Dadgostar, 1986). But other U.S. studies tend to indicate that U.S. price elasticities of demand for pork have indeed changed over time.

Leaving aside the rather important problem of changes in supply elasticities and their likely changing nature over this period, these findings are also consistent with other estimates put forward from the examination of the most recent Canadian hog cycles. In Canada, the percentage change in pork prices seems greater than the percentage change in pork supply. This implies that demand for pork is relatively price inelastic, perhaps even more so now than in 1960 but, surprisingly, less so than in 1970. One may emphasize in passing that price inelasticity indicates that consumers of the relevant product are reluctant to change consumption habits, so a relatively large change in price is required to induce consumers to readjust their purchases when a given change in supply finally reaches the retail market.

This also implies that restricting national supply of pork, other things being equal (including the balance between exports and imports at actual levels), might theoretically lead

to a larger value of sales coming from Canadian consumer spending on pork products. Of course the turning point between a product having this characteristic and one that does not have it is -1.00, a level to which the U.S. hog sector seems closer than its Canadian counterpart.

This conclusion, however, remains somehow speculative for two important reasons. First, it rests upon volatile political assumptions concerning import-export conditions which do not seem to hold firmly under present circumstances. Second, if U.S. demand relationships are significantly indicative of what might be the consumption behavior of the typical Canadian pork consumer in the 1990s, it would suggest that this fortunate Canadian consumption behavior, as seen from the point of view of the advocates of hog supply management in Canada, may not hold forever. It must be emphasized, however, that we have found no firm ground either to argue that the U.S. consumption profiles are clearly indicative of forthcoming Canadian patterns on this matter, or to argue that higher price elasticities measured at the intermediate levels of the 1970s in Canada were a temporary phenomenon that may not reappear.

Demand shifters

Several factors are involved in determining the per capita consumption of pork products. Aside from population growth, traditionally it is believed the price of pork products, the price of others meat substitutes and the income levels of the consumer have been the major determinants. But there are others (Zafiriou, 1985). Again going from the most to the least recent estimates of income elasticities of demand for pork in Canada (estimates vary from -0.258 to 0.599 (Dadgostar, 1986).

One may nonetheless be tempted to compare these Canadian estimates with those in the U.S. during comparable periods. One major U.S. study on demand qualifiers generated a series of 15 successive income elasticities, beginning with 1951-59, and so forth through 1964-73. It found that income elasticities were negative in the 1950s, approached zero in the early 1960s and became positive and statistically significant in the late 1960s and early 1970s (Hayenga et al, 1985). This suggests that the demand for pork at a given level of market price still grows as income increases, although this may not have been true earlier in the U.S. The U.S. case thus displays similarities with Canadian trends on this matter.

Also of increasing importance today and perhaps even more so in the future, it is believed, will be the lifestyle and awareness of the consumer (The Future of the Industry Committee, 1983). It is also argued that convenience, health and time have and will continue to become the major determinants of pork consumption in the future.

It also seems that ethnic characteristics of Canadian immigration have recently favored the development of pork specialty products by specialized and highly dynamic packers (The Future of the Industry Committee, 1983). There does not seem to be general agreement, however, on the expected lasting horizon of this phenomenon.

Finally, examination of recently calculated substitution suggests that beef has historically been the primary substitute for pork. But in recent years, especially in the U.S., the rapid increase in poultry consumption has led to poultry products showing up as a severe competitor (Hayenga et al, 1985). Thus both beef and poultry appear to be substitutes for pork to some extent nowadays, despite the fact that some analysts have faced great difficulty in confirming sound price cross-elasticity measures between pork consumption and poultry retail prices with logical, consistent and strongly tested results. Most recently, between pork consumption and poultry prices, with strong results. A cross-price elasticity of 0.35 was found and it was significant (Dadgostar, 1986; Zafiriou, 1985).

Pork products at times have been characterized as a "blue collar" meat, implying that the lower-income households tended to consume the greatest quantities of such products. By examining consumption profiles of pork through both its own relevant price characteristics and its

responsiveness to supply shifters, we fail to fully understand, at least from a historical perspective, why this image has continued to perennially plague pork products both in Canada and the U.S. (Hayenga et al, 1985). According to the Family Food Expenditure Survey data, only slightly more pork (in quantity per capita) was consumed by the lowest-income quintile in 1974. But in 1982, the higher-income quintiles consumed more. When expenditures shares are considered, the higher-income classes spent a larger share of their food-at-home dollar on pork products in 1974, 1978, 1982 and 1984.

Finally, it must be pointed out that comparisons of elasticities between studies are always problematical in that the model specifications are likely to be different and in some cases the data may be different. Ideally, one would like to have the calculated parameters invariant to the methods used by the researcher, but this is rarely the case. It is probably necessary to calculate the parameters for the two separate periods using the same models, data, and estimation methods. This is done in those studies where the researcher is looking for structural change in demand. The same general comments apply to comparing income elasticities. So one is rarely on solid ground to reach strong and practical conclusions from such comparisons.

Despite such scientific restrictions, it thus appears that the changes in relative prices of red meats and poultry and changes in real income can explain much of the change in per capita pork consumption during the period of observation. There does appear to have been a significant growth in poultry meat demand that can now be better explained by changes in relative prices and income than it used to be.

TABLE 3.1 NUMBER OF ESTABLISHMENTS SLAUGHTERING AND PROCESSING RED MEAT IN CANADA, 1960, 1970, 1981 AND 1984

	Number of Establishments				
			1981		1984
	1960	1970	Total	Under federal and/or provincial inspection	Under federal and/or provincial inspection
Atlantic provinces	13	29	21	12	11
Quebec	63	133	130	46	37
Ontario	73	150	181	49	51
Manitoba	13	28	32	36	20
Saskatchewan	10	22	32	17	18
Alberta	21	42	64	32	36
British Columbia	17	44	41	11	14
CANADA	210	448	505	203	187

Sources: Statistics Canada, cat. nos. 32-331 and 32-227; and Len W. Fisher, "Packing Plant Slaughter and Processing Activities," Agriculture Canada, Ottawa, July 1986.

TABLE 3.2 AVERAGE EARNINGS PER WEEK IN THE MEAT PACKING INDUSTRY, CANADA AND THE U.S., 1980, 1982 AND 1983

	Canada	U.S.	Difference
	(in Canadian dollars)		
1980	332	320	12
1982	411	366	45
1983	425	361	64

Source: DRIE (1984); see also Cooper (1984) and Lanoie (1984).

TABLE 3.3 CONCENTRATION IN CANADA'S LARGEST MANUFACTURING INDUSTRIES, 1980

Manufacturing enterprises	Ratio of industry sales dollar by	
	4 Largest enterprises	8 Largest enterprises
	(%)	
Petroleum refining	61.7	84.8
Pulp and paper mills	30.9	49.0
Motor vehicle manufacturing	93.7	98.0
Slaughter and meat processing	43.3	53.0
Iron and steel mills	77.9	90.1

Source: Statistics Canada (1980).

TABLE 3.4 TRENDS IN CONCENTRATION IN THE MEAT PROCESSING INDUSTRY,
CANADA, 1965 to 1980

Enterprises	Shipment values (\$ million)	Ratio of total shipments by	
		4 Largest	8 Largest
	(%)		
1965	365	1 439	61.8
1968	391	1 773	55.4
1970	406	2 061	54.8
1972	415	2 551	54.0
1974	433	3 557	50.2
1976	408	3 990	49.5
1978	437	5 515	44.0
1980	490	6 944	43.3

Source: Statistics Canada (1980); see also Hawkins and Norby (1977).

TABLE 3.5 INVESTMENT IN SLAUGHTERING AND MEAT PROCESSING INDUSTRY,
1960-86^a

	Capital expenditures			Repair expenditures			Total Capital and repair
	Construction	Machinery and equipment	Subtotal	Construction	Machinery and equipment	Subtotal	
(\$ million)							
1960	8.4	8.7	17.1	2.8	9.6	12.4	29.5
1961	5.1	9.2	14.3	1.5	11.1	13.6	27.9
1962	4.7	8.5	13.2	1.4	12.3	14.7	27.9
1963	5.9	7.4	13.3	2.0	12.4	15.4	28.7
1964	7.9	14.8	22.7	3.3	14.4	17.7	40.4
1965	5.1	13.2	18.3	2.9	15.0	17.9	36.2
1966	5.6	14.9	20.5	3.1	18.7	21.8	42.3
1967	6.0	14.7	20.7	3.2	17.0	20.2	40.9
1968	6.8	14.9	21.7	3.5	17.2	20.7	42.4
1969	7.7	14.0	21.7	3.9	18.9	22.8	44.5
1970	11.1	19.2	30.3	4.9	21.6	26.5	56.8
1971	12.1	20.8	32.9	4.9	20.1	25.0	57.9
1972	11.8	21.5	33.3	4.9	24.9	29.8	63.1
1973	7.8	20.5	28.3	5.4	25.7	31.1	59.4
1974	11.3	25.8	37.1	5.0	29.2	34.2	71.3
1975	10.7	29.1	39.8	5.3	29.5	34.8	74.6
1976	14.7	33.2	47.9	7.0	36.1	43.1	91.0
1977	18.4	40.8	59.2	7.3	36.7	44.0	103.2
1978	24.7	36.1	60.8	8.5	41.2	49.7	110.5
1979	24.2	46.6	70.8	10.0	44.1	54.1	124.9
1980	34.1	61.2	95.3	11.8	56.3	68.1	163.4
1981	20.0	41.2	61.2	10.1	47.5	57.6	118.8
1982	12.5	43.9	56.4	11.4	51.0	62.4	118.8
1983	18.2	62.8	81.0	10.0	49.2	59.2	140.2
1984	22.6	50.6	73.2	13.3	49.9	63.2	136.4
1985 ^b	22.4	51.5	73.9	14.7	51.8	66.5	140.4
1986 ^c	23.0	55.9	78.9	15.0	52.9	67.9	146.8

^a includes both beef and pork activities

^b preliminary

^c intentions

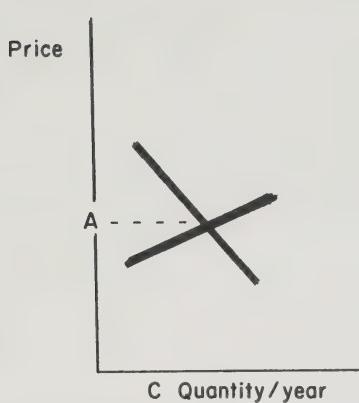
Source: Cooper (1986).

TABLE 3.6 PER CAPITA CONSUMPTION OF BEEF AND VEAL, PORK AND POULTRY PRODUCTS, CANADA AND U.S., CARCASS WEIGHT, 1965 and 1970-85

	Beef and veal	Pork	Poultry
	(pounds)		
Canada			
1965	83.6	47.9	36.1
1970	84.4	58.8	44.7
1971	88.6	65.0	43.0
1972	94.3	63.1	43.9
1973	92.7	59.3	45.6
1974	96.1	62.2	45.0
1975	106.4	53.2	41.0
1976	113.4	55.4	43.9
1977	107.8	55.4	45.6
1978	100.9	57.2	47.0
1979	88.0	64.1	50.3
1980	87.2	69.1	50.5
1981	90.2	66.4	49.8
1982	93.0	61.5	50.0
1983	91.9	63.3	50.5
1984	88.4	61.5	52.3
1985	89.5	62.8	55.3
United States			
1965	104.7	67.2	41.1
1970	116.4	72.6	48.8
1971	115.4	78.7	49.0
1972	117.7	70.9	51.1
1973	110.6	63.4	49.3
1974	118.0	68.5	49.9
1975	122.9	55.4	49.0
1976	131.5	58.6	52.2
1977	127.8	60.5	53.6
1978	120.8	60.3	56.3
1979	107.5	68.8	60.9
1980	105.2	73.5	61.0
1981	106.1	69.9	62.9
1982	106.3	62.7	64.3
1983	108.4	66.2	65.5
1984	108.4	65.6	67.5
1985	106.9	66.0	70.1

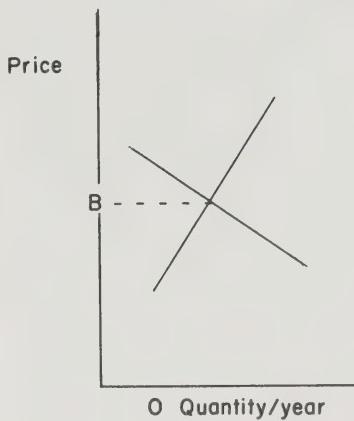
Source: Boswell (1985a), Statistics Canada cat. no. 23-203, USDA (1982, 1984, 1986).

FIGURE 3.1 NATIONAL SUPPLY
AND DEMAND
CURVES OF PORK
PRODUCTS, CANADA
CIRCA 1960



8.5 million head of hogs equivalent

FIGURE 3.2 NATIONAL SUPPLY
AND DEMAND
CURVES OF PORK
PRODUCTS, CANADA
CIRCA 1980



13.5 million head of hogs equivalent

CHAPTER 4: INTERNATIONAL ASPECTS OF THE CANADIAN HOG/PORK INDUSTRY

The Canadian hog/pork industry has traditionally been oriented to and has taken its most important production and/or price signals from the domestic Canadian market, while maintaining major continental trade linkages with its U.S. counterpart (Hawkins, Bennett and Boswell, 1972). But since the last buildup in Canadian hog population, particularly since 1976, the international market linkages have increased in complexity. This section focuses on only a few aspects of this complex web of international forces, namely those most relevant for the Canadian hog/pork industry between 1975 and 1986. First it deals with trade patterns since 1965. Then it focuses on the following current issues: U.S. countervailing duties (CVD), EEC subsidies, the promotion of sales of Canadian pork commodities in this industry's two-pronged marketing environment, and finally the U.S.-Canada recent price spreads.

Trade between countries occurs in a global context and is rarely the result of only bilateral flows without direct or indirect effect on third parties. But one may provide a general description of Canada's historical participation in the world's hog/pork exports and imports by stating that the backbone of it has been and remains the continental and perennial linkages with the U.S.

CANADA'S HOG/PORK TRADE FLOWS

Traditionally Canada's hog production has sporadically exceeded domestic requirements, resulting in net quantities of exports over imports or vice versa, but within proportions that rarely exceeded more or less 5% of domestic production (Hawkins, Bennett and Boswell, 1972). Table 4.1 presents data on Canada's commercial pork balance sheet from 1970 to 1985, while Figure 4.1 summarizes the major changes which have taken place in Canada's per capita pork supply and consumption since the early 1970s. These data clearly indicate that the last buildup in national hog population since 1976 has placed Canada in a net hog/pork exporter situation significantly different from the previous one.

For a better general understanding of the latest developments that have taken place within the export-import sector of Canada's hog/pork industry, one should also look at the general trends that have prevailed in the origin and/or destination of Canadian imports and exports. Table 4.2 and 4.3 present data, first on Canadian exports of live hogs by destination (U.S. and rest of the world), and then on exports of pork products to the U.S., Japan and the rest of the world (ROW) between 1970 and 1984. In turn, Table 4.4 presents data on Canadian pork imports from the U.S. and the rest of the world (ROW) during the same period.

A few general conclusions can readily be drawn from these data. First, the bulk of Canada's trade in live hogs has traditionally been and remains with the U.S., while size and/or proximity of the U.S. market, along with close to free trade conditions, have been the main contributing factors for this situation (see Appendix C). Second, Canadian pork and pork products are sold in two major foreign markets, namely the U.S. and Japan, small amounts of pork being also occasionally exported to the residual markets. Third, Canadian pork imports are primarily processed products originating in the U.S. and to a lesser extent the EEC.

A continental perspective

Since 1960 hogs and porks have flowed both ways across the Canada-U.S. border, and the net balance of trade has switched six times between the two countries during that period (Figure 4.2). But the last two switches, namely the first one when Canada was a net importer between 1974 and the beginning of 1979 and the second one when Canada became a net exporter (since 1979 up to now), have been much greater than usual.

Although Canadian exports of pork products reached record levels during recent years for various reasons including the important one of the falling value of the Canadian dollar vis-à-vis the U.S. dollar, exports to the U.S. still represent a mere 2% of U.S. production. In contrast, U.S. net exports of pork to Canada, between 1974 and 1978, represented an average annual level of 8% of Canadian hog/pork production, with a high of 14.2% in 1977 (Carter and Chadee, 1986).

For Canada, maintaining a net trade balance with the U.S. as far as possible is a very important target for the industry as a whole. Indeed, Canada's combined hog/pork trade with the U.S. varied between 15% and 20% of Canada's total pork production since the late 1970s up to 1985.

Most recently, however, a major barrier has been established in the Canada-U.S. pork trade relationship. After conducting an enquiry on the competitiveness of Canadian live hogs and pork commodities in the U.S. market in 1985, the USITC recommended that countervailing duties be imposed on Canadian live hogs and pork entering the U.S. (U.S. Dept of Commerce, 1985). The consequences of such drastic measures from Canada's major hog/pork trading partner were rapidly felt by Canadian hog producers, as we see in subsequent sections of this report.

Non-U.S. foreign markets

Only part of what most experts had predicted in the mid-1960s for the international hog/pork industry as a whole unfolded in the 1970s.

It is interesting to point out in passing that rather depressing views such as the following (Mehren, 1966) were then commonly expressed by many U.S. leading observers about agricultural trade in general:

Agriculture trade requires massive demand and relative cost differences to overcome the ineradicable barrier of transfer costs alone. Except for our [U.S.] few essentially commercial markets and a few enclaves elsewhere, there are neither present nor potential income levels to support significant commercial trade other than for cereals and perhaps low-priced proteins.... Canada should remain a major commercial market. The U.K. should be expected to try increasingly to obtain its food, feed and fiber from areas to which it can export nonfarm products. Japan is a natural trading partner, and there is already a major potential yet untapped source that could be supported by earned means of payment.

Japan as an emerging market was one cause of underestimation of the international hog/pork

market in those days. Let us explore rapidly the proper general perspective which might explain why and the conditions under which Canada-Japan present pork exports situation has developed.

Japan as an emerging market

First and foremost, in Japan the consumption of starchy foodstuffs continued along the line of its postwar decline. It turned, total consumption of meat per capita increased from 3.3 kg in 1965 to 20.3 kg in 1977, and this was caused mainly by increases in consumption of pork and chicken. Despite serious attempts to stimulate national production of meats, Japanese production of pork was not capable of keeping pace with the surging national demand (Kuroda, 1982; Schmitz, 1984).

Fortunately, supported by increasing earned means of payment, the foreseen main potential of the Japanese market as one of the leading forces behind a more internationally driven hog/pork industry started to unfold fairly rapidly. Japan was indeed emerging as one of the important importers of food, including pork products in the early 1970s (Carter, 1984).

But to put this into a better perspective from Canada's point of view, it is interesting to examine pork production and exports in a larger international food context during the early 1980s (see Appendix D, Table D.1). Production of major agricultural products worldwide increased steadily over this period. However the production of both pork and beef products increased relatively slowly, as seen from the point of view of the total food bill.

Japan has undoubtedly played an important role in this upswing in world food trade, including pork, beef and other meat products (Appendix D, Table D.2). This happened despite the fact that the Japanese system of import quota restrictions for livestock and meat products were already fairly stringent. Live swine and pork quota restrictions were liberalized to a little extent in October 1971. So were those for ham, bacon, salted meats and edible offals in April 1972. But in most instances tariff rates prevailing in Japan were increased when import quota restrictions were temporarily reduced (Hillman, 1978).

Japan was also a trend setter in buying through term contracts, which were refined over the years. These contracts were the topic of debate in Canada as well as in other major pork exporting countries. The main focus of this

debate has been the highly fluctuating money markets, which gradually became too volatile for justifying, so it appears, increased proportions of long-term commitments from both the buyer's and the seller's sides in the case of Japan, but mostly from the seller's point of view as viewed from a present Canadian perspective (OHPA and OPPMB, 1986; Horner, 1981, p. 161).

By way of summary, in the early 1980s Japan had reached a stage where it was importing 239 million pounds of pork products for a total amount of U.S. \$408 million (Appendix D, Table D.3). In 1980 Canada's shares of total volume and value of hogs imported in Japan were equal to 27.6% and 27.4%, respectively. They were then almost exactly the same as the U.S. shares within this expanding market. Taiwan, which had emerged also as a net importer of pork in the 1970s, then held 15.5% of the market share.

General worldwide conditions under which international trade of hog/pork products was to develop in the first part of the 1980s can perhaps be summarized as follows.

On the demand side, the growing importance of the U.S. and Japan as importers of pork increased most significantly, their combined total in volume going from 888 million pounds in 1980 to approximately 1571 million pounds in 1984 (Table D.4). On the supply side, the U.S. gradually lost ground to other major exporters, namely Denmark, The Netherlands, Belgium and Canada (Table D.5).

Meanwhile, international trade of live swine remained strictly confined to the traditional trading blocks of the EEC (The Ten) on the one hand and the North American hog economy on the other. Surprisingly, the volume of live swine traded on international markets held steady, despite significant yearly changes originating mostly in Belgium, the U.K., the U.S. and Canada, especially around 1982 (Table D.6). So did the live swine inventories in the major producing areas of the world, the U.S., Portugal, Poland and Mexico, as well as Denmark to some extent, being the exceptions (Table D.7).

So were the highlights of the hog/pork export and import trends within which the Canadian hog/pork industry has tried to carve its way through a net exporter situation in the early 1980s. This was just prior to and/or during the recent period of legal investigations launched by various major participants against each other, including Canada and the U.S., into this thin but extremely competitive international hog/pork market.¹

Aside from the U.S. investigations, which were conducted first in Canada and then in the EEC and third-country markets, in May 1984 Canada imposed provisional countervailing duties on imports of certain pork-based, canned luncheon meats from Denmark and The Netherlands. On August 7, 1984, the Canadian government determined that the imports from Denmark and The Netherlands were indeed injuring the Canadian industry and that relevant countervailing duties that had been provisional would continue to be imposed.

PRESENT TRADING ISSUES

It seems there is no single, simple, perfectly logical and straightforward theory to explain why these trends unfolded the way they did, both internationally and in Canada. Nor do we want to invent one. Simple and straightforward theories just do not seem to take root and flourish on such moving ground.

But it appears that the need for an accommodating set of explanations and/or forward-looking strategy for the hog/pork sector is so great in Canada nowadays that, in comparison, any error of interpretation or omissions on our part, as seen from the 1990s on, would be forgiven. For this reason we will dare to suggest that some constructive interpretation of the present trading issues in the Canadian hog/pork industry can be done along the following line (Martin, 1981).²

With the exception of a few short periods of time when trade was restricted, the Canadian market for pork has therefore first been part of a larger North American (until the mid-1970s) and then also Asian (mostly since 1975) markets. The U.S. and Canadian markets are separated only by small import duties but the expanding Japanese market remains sheltered by import quota restrictions (Appendix E). Canada currently produces approximately 15% of U.S.-Canada combined output. Thus changes in supply and demand conditions, in Canada alone, would normally have little impact either on the North American or on the Asian price levels.

At any given point in time since the mid-1970s, the usual range of all possible "Canadian" prices can be viewed as either:

- the midwestern U.S. price plus transfer and tariff charges to Canada (usually called the import ceiling), on the one hand, to the midwestern U.S. price less transfer and tariff charges from Canada to the U.S. (usually called the export floor), on the other; or

- Canada's strongest competitor's price plus transfer and tariff charges into the Japanese market, on the one hand, to Canada's competitor's price less transfer and tariff charges from this specific country into the Japanese market, on the other hand; or
- perhaps, at times, a weighted combination of both.

Whether some regional, provincial or truly Canadian prices are at either side of all these extremes, at the same time, depends upon whether Canada is neither exporting nor importing to any significant extent (self-sufficiency), whether it is exporting mostly to the U.S., or whether it is on an important but fairly balanced export-import basis with both the U.S. and Japan. The latter is closest to the current situation.

This factor, which is commonly designated as a "freight under" price in the pork trading business (a misnomer for the export floor price), is perhaps more fundamental than it has ever been before to understanding many of the ambiguous price spreads, which have recently developed and have reached questionable proportions, notably between Canada and the U.S.

First, there are already some tested theoretical approaches for explaining such relationships in order to show their implications for the current Canadian net exporting situation with regard to both the U.S. and Japan. But because of their "heavy" theoretical content, we have chosen to summarize them in a brief appended technical section (see Appendix F), while keeping the explanation as simple as possible, hopefully without endangering the basis of relevant analytical methodologies for such a problem. But more important in practice is the fact that international pork exports are shipped to Japan under a fairly complex set of import conditions, which have come to be known as the "Japanese pork import system." The salient characteristics, which have been sketched out in various recent Canadian publications, (Carter and Chadee, 1986; Hay and Lovett, 1984), are summarized import conditions, which have come to be known as the "Japanese pork import system." The salient characteristics, which have been sketched out in various recent Canadian publications, (Carter and Chadee, 1986; Hay and Lovett, 1984), are summarized in Appendix F.³

In practice, it is extremely difficult to set apart all the major factors that were truly the real shifters on the international hog/pork markets since the early 1980s, even with solid analytical

tools. As a matter of fact, because of outbreaks of foot-and-mouth disease in Denmark (first between March and May 1982 and then in January 1983), this major producer was excluded from selling fresh, chilled or frozen meat in major markets. This explains the drastic reduction of Danish exports to Japan in 1982 and 1983 (Table D.3). Also, at the end of the first quarter of 1985, Japan announced a reduction of tariffs on imported pork.

In the context of such more or less unpredictable events, various opinions have been expressed in Canada concerning the relevant international spreads. For instance, it has recently been argued in Canada that "Japanese market prices reflect world market prices better than Canada or U.S. pork prices" (The Future of the Industry Committee, 1983, p. 35). Some leading observers went so far as to argue that "one official of the government of Japan decides what market share each country will receive for the upcoming year, barring unforeseen circumstances" (p. II-27).

We are not quite sure what this set of not so obviously converging opinions altogether means. The most recent profiles of Japanese pork imports indicate that Japan is perhaps leaning toward some concerted form of diversification of its sources of foreign supply (Table D.3). Comparing the average yearly volume imported in Japan in 1983-84 to that of 1980-81 (i.e., excluding 1982, which is perhaps the year of the worst unforeseen circumstances of the early 1980s) shows that Canada's share went from 24.8% to 19.7%, while the U.S. share dropped from 23.6% to 16.2%. Denmark's share also declined from 34.7% to 25.5% while Taiwan's portion of this market climbed from 12.6% to 23.2%. The most common belief that Japan deliberately and systematically attempts to coordinate and to allocate shares of its agricultural imports market in direct relation to its exports of industrial products by destination or in connection with major policy objectives does not therefore seem to hold for such a specific category of commodities as hog products.

It is interesting to note in passing that the difference between Canada and the U.S. in the consumption of pork and poultry is also quite important in understanding actual issues at stake. It has indeed been argued that the gap in the U.S. between per capita poultry consumption and pork consumption has been narrowing through time, whereas that in Canada has remained relatively constant, due in part to the relative prices of the two commodities in the early

1980s. Largely because of supply-managed marketing boards, the price of poultry products relative to the price of pork is greater in Canada than in the U.S. (Schmitz, 1984, 1983).

One is therefore led to believe that U.S. packers tend to buy Canadian hog/pork products on the basis of their capacity to compete of the U.S. retail price relative to that for poultry products. This hypothesis is coherent with those spelled out above and might account for minor price differentials between the two countries, if price arbitraging between the two commodities across the two countries is not instantaneously perfect.

But the existence of price spreads between the U.S. and Canada, which would significantly exceed the so-called "Ontario and U.S. Conversion Formula" could perhaps be tested by the use of the framework spelled out in Appendix E. Such differences under careful examination might indeed be viewed as indicators as to whether or not Canadian hog/pork export prices are being driven to their lowest possible floor, even by Japanese importers.

This extremely important question of price-spread-related issues will be considered as a full-fledged subject in its own right in a following section of this chapter.

Whatever the most solid opinions on this matter, there are reasons to believe that the conditions under which the international trade of hog/pork products is taking place circa 1985-86 constitute in and by themselves utmost priorities for Canada's consideration. In particular, it seems quite clear that it is in the best interests of Canadian hog producers that serious and urgent attempts be made to:

- pursue and achieve as rapidly as possible the goal of having U.S. countervailing duties removed on Canadian live animals;
- pursue and achieve the goal of preventing any other form of U.S. countervailing duty from being imposed on Canadian pork products;
- pursue and achieve the goal of having export subsidies removed at least in those countries that are Canada's fiercest competitors on the Japanese market;
- pursue and achieve the goal of having Japan lower if not remove its tariff and export quota restrictions on pork imports, at least gradually if not totally, in the second part of the 1980s;
- continue pursuing the goal of stimulating the development of a competitive hog/pork

industry in Canada to keep up with the fiercest competitors on international markets;

- keep a closer eye on the likely emergence of increased market power by both Canadian and foreign processors on the Canadian hog market (noting that price ranges have widened from ceiling to floor, that the national supply curve seems to have become more and more sticky as hog production becomes more concentrated on larger specialized farms, and that some of the leading import markets such as Japan apply import quota restrictions, which create conditions for vertical price-quantity relationships in the lowest portions of the price-quantity demand and supply map);
- continue pursuing the goal of establishing a more and more coherent national and international Canadian agricultural policy, notably in terms of exports of highly substitutable products on a given market. For instance, it seems that in Japan very high beef prices could have been the major reason why the consumption of pork and chicken increased so rapidly during the last two decades. Increased sales of beef products from Canada to Japan could in turn contribute to reductions of exports of pork products to that country, especially if Japan has implicit if not explicit quota restrictions for total yearly imports of red meats from Canada (JETRO, 1986a, 1986b).

These changes, adjustments and/or concerns would most certainly help the Canadian hog/pork industry to continue its recovery from its recent situation.

Finally, the fact that Canada and the U.S. are locked together in mutual dependence upon a vast flow of hog/pork commodities between the two nations should not be underplayed. Variations in exchange rates of the respective currencies of those two trading partners have been a most important factor, among others, in determining changing levels and/or values of the hog/pork trade flows between these two countries, as well as between each one of them and the rest of the world (Rice, 1985; Goodloe and Byrne, 1985).

But since there is neither general agreement on the specific importance of this factor for explaining recent trends in hog/pork trade on either the North American or ROW markets, nor definite research results for gauging it, we are not inclined to explore this particular issue in greater depth. Let it be sufficient, by way of

summary, to point out that there is a school of thought which argues that variations in the Canadian-U.S. exchange rate, especially since 1975, have been the dominant factor in explaining shifting trends in Canada-U.S. hog/pork trade (Saint-Louis, 1986; Rice, 1985; Goodloe and Byrne, 1985; Deaton, 1985). But there is another school of thought which maintains that changes in the exchange rate between Canada and the U.S. have actually very little bearing, in reality, on the supply side and consequently on the trade of pork with the U.S. (Martin, 1984). We therefore leave it as an unresolved issue.

CURRENT MAJOR ISSUES

U.S. countervailing duties

The tariff is basically a tax levied upon a commodity when it crosses a national boundary. The U.S. countervailing duties (CVD) on Canadian live swine, which were enacted in August 1985, may thus be viewed as a precise kind of a tariff.

Usually one distinguishes between *ad valorem* duties, specific duties and compound duties. The *ad valorem* duty is simply a fixed percentage of the value of the commodity. A specific duty is a fixed sum of money per physical unit of the commodity, say, 4.39 cents per pound of live swine. A compound duty is a combination of the two.

The term "countervailing" does not lead to an additional category of tariffs besides those already mentioned. It simply makes explicit the fact that it is enacted as a counter tax against specific hog/pork policies which were deemed "countervailable." Therefore it usually implies that it involves one or very few countries and/or regions counter to one or very few countries and/or regions. It also implies that it must be calculated to some kind of an equalizer over and above geographically identified comparative advantages.⁴

The U.S. CVD on Canadian live swine is targeted on Canada. According to traditional categorization of tariffs, it is therefore a specific duty that is more or less severely interfering with normal trade flows of live swine from Canada to the U.S., depending upon the price of the animals at a given point in time. Precisely because of this characteristic, especially when the price of the commodity is highly unstable, specific tariffs are usually subject to periodic revisions when they are used to countervail another country's reprehensible practices leading to material

injury for its trading partners. Usually the level of the duty is determined basically by measuring subsidization during the review period (originally April 1, 1983, to March 31, 1984, in the present case) divided by the volume of the trade flow under consideration. The U.S. CVD on Canadian live swine is therefore a special kind of specific duty in two important regards. First, it is (at least in principle) likely to remain a fixed sum per physical unit of the commodity only during a given revision period. Secondly, it is enacted in a sequential fashion but without any predetermined formula as to its next year's level nor any predetermined condition for its termination.

Since tariff setting in the U.S. is a congressional prerogative, the American tariffs in general, and specific ones such as CVD in particular, reflect the influence of a great variety of pressure groups (Talbot and Kihl, 1982). Moreover the uncertainty that results from the usual complexities of administrative enacting of CVD, along with the political aspects, is in itself a major if not the most important additional hindrance to normal flows of live swine trade between Canada and the U.S.

One may wonder why Canada might not wish to levy an export tax on its own live swine exports to the U.S., perhaps by way of a temporary substitute for the existing U.S. countervailing duty. It would then at least be keeping the revenue side of this tax in Canada, for general if not specific public purpose use. The CPC has already investigated this option. The assumption was that the revenue for the U.S. government from this protective countervailing tariff is but a pleasant by-product, and obviously not the major objective of its enactment. It met little success thus far.⁵

In practice one of the most important consequences of the present U.S. CVD on Canadian live swine is perhaps to reduce the number of major regular buyers of the slaughter hogs on the Ontario market from five to four, thereby creating a situation where market power on the buyer's side is potentially increased. Given the importance of this market in its chain linkages with other markets in Canada through formula pricing, the practical consequences of this duty are real and possibly far-reaching.

Be that as it may, perhaps the main practical issue before the Canadian hog/pork industry now is to unravel some of the uncertainties as to how and when Canada can get this CVD removed. Since the list of Canadian hog/pork programs that were found by the USITA to confer

countervailable subsidies is quite an extensive one, one may perhaps be rather pessimistic and argue that there is even some real danger for Canada that the U.S. will not resist the temptation of gradually changing the nature of this time- and location-constrained tariff and make it a more or less permanent feature of the North American hog/pork scene for years to come (Appendix G).

But quite to the contrary, others may perhaps be rather optimistic and argue that within the present U.S.-Canada bilateral trade negotiations, Canada might manage to work out a deal with the U.S. whereby completely free trade for both live swine and pork commodities would always prevail from now on, except perhaps for special circumstances such as when specifically determined price indicators would fall below a certain level yet to be determined. We may perhaps call this a price-triggered countervailing investigation situation. This option is, of course, a pure hypothesis on our part at this stage.

The latter rather optimistic and perhaps extreme alternative would convey the obvious advantage of not requiring major changes in Canadian stabilization policies for the hog/pork sector in order that the actual CVD be removed, since price levels for live swine are trending upward. However, since payments under these stabilization programs are greatest when the North American price cycles in the live swine industry hit their lows, such an agreement with the U.S. would most apparently leave the door open for levying some duty when price indicators would fall below those predetermined levels.

In the present study only two forecasting assumptions concerning the live swine CVD were retained. Firstly, it was assumed that actual CVD on live swine shipped from Canada to the U.S. will continue to exist at least until the end of the 1980s, but perhaps with their level being adjusted downward as of 1987. This is the pessimistic assumption. Alternatively, it was assumed that this specific tariff will be removed completely in the very near future, the effect of its removal being even perhaps retroactive to the entire 1986 year. This is the optimistic assumption.

The price-triggered duty assumption, perhaps nested within a larger hog/pork agreement, was not retained in this study. The reason for excluding it is obviously not its lack of interest but rather its vagueness at this stage of the U.S.-Canada bilateral trade negotiations.

EEC-subsidized pork exports

In establishing a framework within which its agricultural policies were originally and have continued to be developed, the EEC has taken a very broad approach. Five general objectives were agreed upon by all members, namely to increase agricultural productivity, to insure a fair standard of living for the agricultural population, to stabilized markets, to guarantee regular supplies, and to insure reasonable prices to consumers.

These general guides are implemented under three broadly oriented sets of programs, namely the so-called structural policies, market and trade policies, and social policies in the field of agriculture. Thus specific policies for the hog/pork industry in the EEC are rarely if ever referred to and/or statistically documented as a single clean-cut and individual bundle of elements under a precise umbrella definition of public aids to the sector. They are documented as a rather vague list of programs and/or policies for various types of farms (including, of course, mixed farming, which is still very common in the EEC) under the most general umbrella definition of structural market and social policy categorization. For this reason it is no easy task to identify and measure precisely the extent, let alone the impact, of EEC public help for the hog/pork industry (USITC, 1985b; Sorenson and Hathaway, 1968; Courgeon and Mahé, 1986).

Pork production and trade in the EEC are therefore influenced mostly by the various and always evolving elements of the so-called Common Agricultural Policy (CAP). In general, market and trade policies included in CAP aim at maintaining price levels as common as possible throughout EEC, and at insulating EEC farmers from effects of the world market. Specific arrangements for pork, in effect and rather stable during the last two decades, apply to live market swine, edible pork and offal, lard and unrendered fat, and processed pork products, including canned pork and sausages.

The essential elements of what we might then loosely call the EEC market and trade policies for the hog/pork industry are internal pricing and market support measures, a system of sluicegate (minimum import) prices and variable imports levies, and export refunds (USITC, 1985). A brief technical discussion of the nature of these programs and how they were used in the hog/pork industry from the late 1970s up to now can be found in Appendix H.

The practical issues raised either directly or indirectly by those EEC hog/pork market and trade policies, with specific regard to the net advantages for the Canadian hog/pork industry of being able to export some 20% or more of its own national production, are thus obviously numerous and very important (Pugh, 1985, 1986; Rice 1985; Weisberger, 1981). Indeed not only does the Canadian hog/pork industry now have to contend with characteristics affecting provincial, regional and/or national industry in Canada, but also it has to come to grips with those in its major export markets, namely the U.S. and Japan, under extremely fierce competitive conditions and with peculiar trade practices such as those prevailing in the EEC.

Perhaps the most general and altogether important consequence of EEC hog/pork policy has been to create a gradually worsening pork market imbalance in the EEC itself, especially since 1973 when Denmark joined the Community (Tables 4.5 and 4.6).

The other main immediate but foreseeable consequences of EEC hog/pork trading practices for Canada may be the following:

- Most Canadian pork exports are, potentially if not in practice, prevented entry into the EEC. Indeed all pork commodities from Canada, except offals, have been and still are subject to very tight protectionist conditions in the EEC under the "variable levy." In practice they must not be sold below the yearly determined "minimum import price." Pork offals are subject to *ad valorem* tariffs varying from 4% to 7%. One may thus argue that by barring Canadian access to the most lucrative European markets, EEC policies in a sense are contributing quite significantly to put the Canadian hog producers in the precarious position of unhealthy dependence on a single market, namely the U.S.
- The Canadian pork industry's competitive position in the U.S., at times, but most generally outside North America and perhaps most seriously in Japan, is and will likely continue to be jeopardized by the hog/pork import and export policies of the EEC. Recently (end of 1985), the EEC has been paying subsidies on about 30 pork products exported to non-EEC countries. Upon the threat of countervailing actions from both Canada and the U.S., the rates of subsidy for specific products have been differentiated between North American and non-North American, non-EEC destinations (USITC, 1985b).⁶

The EEC usually argues that those subsidies are necessary to offset the competitive disadvantage imposed on the EEC's major exporting members, such as Denmark and The Netherlands, due to the higher cost of EEC pork as a result of the internal protection afforded by the variable levy. It seems fairly clear that the very basis of this circular argument will be more and more challenged, both by Canada and the U.S. as a questionable justification during the forthcoming GATT negotiations. But until this basic issue is resolved with the EEC, which might take quite a long time, the existence of the EEC's export subsidies as a cornerstone of EEC hog/pork policies, and thus as one of the most important reasons for the community pork commodities market imbalance, will continue to have severe repercussions in the Japanese market.

Canada-U.S. price spreads

Ever-changing discrepancies in the prices paid to hog producers in Canada and in the U.S. have long been a concern to hog producers in all regions of Canada.

A major CPC (1979) study summarized the main price arbitrating issues related to this concern in the following terms:

As the pork production/consumption balance of the provinces changed between 1965 and 1977, the price differential with the U.S. 7 Markets also changed. The strength of this relationship was striking. As a province became progressively more deficient in pork, its price rose progressively relative to that of the U.S. 7 Markets. This relationship held for every provincial center [Atlantic provinces were not included in the analysis] except Montreal and Saskatoon. There was a difference between the relationship for western and eastern Canada at the aggregate level. For western Canada, the production/consumption balance for pork could change considerably and yet the Toronto-U.S. price differential would remain constant (p.100).

In general this study, along with most other previous ones, has confirmed that the base price for the North American pork market is

established primarily in the U.S. (Gilson, 1979). But somehow, by the end of 1981 (that is, approximately two and a half years after the net Canada-U.S. hog/pork trade flows had switched back in favor of Canada), it seems that a new type of price spread started to unfold between the U.S. and Canada (Figure 4.3 and Table 4.7). We will call it a "three-stage" price spread.

The first stage, going more precisely from the first quarter of 1982 to the fourth quarter of 1983, displays U.S. prices higher than Canadian prices by more or less Can \$5/cwt dressed. Since the exchange rate was then around 1.23, this was equivalent to U.S. \$4.06/cwt. It was then considered to be more or less normal by 1975-77 standards (Appendix I). The second stage, going from the first quarter of 1984 to the fourth quarter of 1985, shows much higher and much more erratic (especially in the second quarter of 1985) price spreads swinging in the range of Can \$9-12/cwt dressed. Since the exchange rate was then around 1.33, this was approximately equivalent to U.S. \$6.75-9/cwt. This is unprecedented in the modern era of U.S. hog/pork trade.

Of course the temporary duty on Canadian pork and live swine entering the U.S., debated since June 1984 and announced by the U.S. Department of Commerce on March 26, 1985, was most certainly the major reason for entry into this second stage of U.S.-Canadian price spreads. Following the final determination on July 27, 1985, the U.S. CVD was dropped on Canadian dressed pork imports but retained on live market hogs at Can \$4.39/cwt (Agriculture Canada, 1985, p. 44). As expected, the U.S.-Canadian price spread dropped quite significantly in the third quarter of 1985, but then it readjusted upward in the fourth quarter of 1985. From then on, it seems to have reached a third stage by showing signs of marginal but consecutive decreases. But it is perhaps a little early to call this a downward trend.

No attempt has been made in this study to dissect these spreads into all their main causal factors nor to take apart the relative importance of various causes of variations observed at these various stages. But a pragmatic assumption was made and tested that, as Canada's volume of hog/pork trade to the U.S. has increased, total transfer costs per additional unit shipped from Canada to the U.S. may have increased, thereby playing a significant role in the shift from the first to the second stage of price spread since

1982.⁷ Furthermore, the view that the very same relationship between volume shipped to the U.S. market and enlargement of the U.S.-Canadian price spread might continue to exist was retained for this study's forecast period (1986-91).

SALES PROMOTION AND R&D IN THE INDUSTRY

Sales promotion

The first major signs of decline of domestic per capita consumption of pork commodities in the early 1980s, paradoxically occurring in a situation when domestic prices were becoming relatively low, led the Canadian hog/pork industry to see, more urgently than ever before, the necessity of major promoting efforts for sales of Canadian products on both the domestic and the foreign markets (Hawkins, Bennett and Boswell, n.d.; MacEachern, 1977; The Future of the Industry Committee, 1983).

The list of ongoing and/or recent pork promotion activities which can now be established in Canada is quite impressive (Appendix J). So is the literature dealing with the conditions and/or the barriers with which Canada must come to grips in order to gain fair access to the Japanese (Kerr, Cullen and Sommerville, 1986; Sakurai, n.d.; Kurahashi, 1985; Boswell, 1985b), U.S. and other foreign markets. This literature comes from the business, government and academic worlds altogether, which is a sign of vitality in this matter. The topics covered range from the irritations of periodic changes in the degree of rigor in the application of international meat import inspecting regulations to the necessity of constantly improving the quality of cuts and PSE control, including that of freezing facilities (Sakurai, n.d.; The Future of the Industry Committee, 1983; Voisard, 1984). It also includes private merchandising strategies which are amenable to meet specific countries' ways of doing things, such as the making up of the right combinations of shipments to comply with the gate price in the Japanese market (Hay and Lovatt, 1984).

Domestically it also seems to imply a major effort on the part of the whole industry to conquer a slightly greater share of the growing hotel, restaurant and institution food market (The Future of the Industry Committee, 1983).

It was not possible, in this report, to do full justice to this important topic of sales promotion. It is extremely important if the industry wants to stay at present levels of national production or perhaps even to keep on expanding marginally from its present 10-10 plateau. In our opinion there are perhaps two additional needs to which not enough attention has been paid so far in Canada. The first one is a need for pragmatic coordination of sales promotion efforts in foreign markets in order to make sure that each Canadian dollar spent earns as much net value of sales as possible. The second one is the longer-run objective of reestablishing an international knowledge of a Canadian way of producing and processing hog/pork commodities. This can be done without distracting attention from the important matter of selling products the Japanese way, the U.S. way or whatever importer's way. Business-oriented research institutions dealing with a specific sectors such as that of the hog/pork industry are more and more contemplated in countries such as the U.S. as a way for a major exporter to build longer-term ties with major importing countries. In the foreseeable future, further investigations will be required with respect to the most appropriate ways of carrying out sales promotion both domestically and on selected international markets.

R & D in the Canadian hog/pork industry

Coming finally to direct or indirect R & D activities in the hog/pork sector, we must point out that research projects, conducted by independent researchers on issues in the hog/pork industry, have always been an integral part of government's contribution to the medium-term and long-term development of this sector in Canada (Fredeen, 1977).⁸ So have been research activities undertaken by the industry

itself on matters of breeding, animal husbandry and/or pork processing technology (Fredeen, 1977; Candler and Manchester, 1974).

Recent estimates of federal expenditures made by Agriculture Canada for animal research during the 1968-85 period tend to indicate that approximately 10% of all such expenses devoted to animal research were used for swine projects.⁹ One might argue that this is not much compared with total research budgets for all agricultural sectors (Appendix K).

We believe that a rational judgment in this matter cannot be made by looking only at relative shares of gross research expenditures devoted to each sector or subsector. One should rather base an opinion on the relative profitability of research in each sector.¹⁰ We believe that the primary source of growth as well as of growth-related adjustments has stemmed from technological and/or scientific findings rather than from market imperfections at both the national and the regional levels. It also seems that some imbalance within agricultural research budgets for specific agricultural sectors may also be a real issue to the extent that agro-technical research pushes out the supply even faster than the social science research can cope with the impacts (Saint-Louis, 1986).

This seems to have been the case in the hog/pork industry in Canada. Indeed it seems that more and more serious consideration now is given to such things as helping hog farmers improve their financial management capacity, as well as to analysis of feeding ratios at individual farm levels to determine ways to better take into account both sound marginal principles according to feed conversion ratios of various breeds and carcass classification standards. The Canadian hog/pork industry has perhaps reached a stage in its development where the payoff for research and extension activities directed to improving the farmer's abilities and/or tools to manage a farm on the basis of regional resource conditions is fairly large (The Future of the Industry Committee, 1983).

TABLE 4.1

COMMERCIAL PORK BALANCE SHEET, CANADA, 1970-85

	Hogs					Pork commodities					
	Domestic slaughter	Exports of live hogs	Imports of hog live hogs	Commercial pork production	Beginning pork commodity stocks ^a	Imports of pork commodity supply	Domestic pork supply ^a	Ending pork commodity stocks ^a	Exports of pork commodities	Domestic disappearance of pork commodities ^a	Per capita disappearance (kg/capita)
(thousand head)											
1970	10 351.0	88.2	3.9	10 435.3	617.9	11.1	11.9	640.5	12.2	32.3	596.3
1971	11 352.0	88.7	0.8	11 439.9	673.6	12.2	8.3	694.1	13.1	44.6	636.4
1972	10 997.0	88.7	1.0	11 084.7	652.0	13.1	20.5	685.6	8.5	52.4	624.7
1973	10 657.0	90.2	0.8	10 746.4	632.4	8.5	24.6	665.5	15.0	57.1	593.4
1974	10 700.0	190.8	0.7	10 896.1	635.5	15.0	31.6	682.1	10.4	42.0	629.5
1975	9 164.0	30.7	0.7	9 194.0	542.3	10.4	44.1	596.0	7.9	40.8	548.2
1976	8 909.0	45.0	0.9	9 013.1	533.0	7.9	88.9	629.8	12.5	39.4	577.8
1977	9 037.0	43.3	0.5	9 073.8	536.6	12.5	91.5	640.6	9.0	46.0	584.7
1978	9 940.0	188.0	1.8	10 126.2	614.2	9.8	54.2	678.2	11.8	56.4	610.1
1979	12 001.0	131.2	1.1	12 131.1	736.7	11.8	33.4	781.9	11.9	79.6	690.4
1980	13 978.0	237.6	0.7	14 214.5	956.3	11.9	17.5	885.7	14.4	118.0	753.3
1981	13 582.0	147.3	0.8	13 222.5	840.4	14.4	19.5	874.6	12.1	129.0	733.5
1982	13 449.0	305.3	0.5	13 753.2	832.7	12.1	14.5	859.3	9.4	163.4	686.6
1983	15 688.0	459.3	0.5	14 146.8	852.0	9.4	19.4	980.8	10.5	157.6	712.9
1984	17 951.0	1 346.5	0.2	15 197.3	862.5	10.5	14.7	887.7	11.2	175.3	27.9
1985	14 431.0	1 152.4	0.3	15 583.1	900.4	11.2	17.0	928.6	9.0	701.2	28.5

^a converted to carcass basis

Source: Special tabulation made by Agriculture Canada from Statistics Canada data.

TABLE 4.2 CANADIAN EXPORTS OF LIVE HOGS COMPARED WITH U.S. SLAUGHTER,
1970-84

	Total Canadian exports (head)	Exports to U.S.			
		Volume	As share of total	As share of U.S. slaughter	U.S. slaughter
			(%)		(thousand head)
1970	80 313	71 465	88.97	0.08	85 817
1971	87 282	83 356	95.50	0.09	94 438
1972	87 495	86 621	99.00	0.10	84 707
1973	88 352	87 389	98.91	0.11	76 795
1974	196 030	195 477	97.70	0.24	81 762
1975	29 403	28 777	97.87	0.04	68 687
1976	44 162	43 330	98.12	0.06	73 784
1977	41 657	40 875	98.12	0.05	77 303
1978	185 807	185 315	99.60	0.24	77 315
1979	129 399	128 635	99.40	0.14	89 099
1980	236 522	235 724	99.66	0.25	96 974
1981	145 037	143 830	99.16	0.16	91 575
1982	303 702	302 454	99.58	0.37	82 190
1983	456 432	453 938	99.45	0.52	87 584
1984	1 344 464	1 343 470	99.92	1.59	84 700
5-year average					
1975-79	86 085	85 337	98.62	0.11	77 237
1980-84	497 231	495 883	99.55	0.56	88 424

Source: Carter and Chadee (1986) ("International Trade Patterns in Pork and Hogs"); Statistics Canada cat. no. 65-004; and Canadian Pork Council (1984).

TABLE 4.3 CANADIAN PORK EXPORTS TO U.S., JAPAN AND THE REST OF THE WORLD
(ROW), 1970-84

Year	Exports of Pork			Distribution		
	Total	to U.S.	to Japan	to U.S.	to Japan	to ROW
1970	622 233	529 500	63 769	85.10	12.04	2.86
1971	882 090	610 837	200 950	69.24	22.78	7.97
1972	1 049 116	549 111	454 042	52.34	43.28	4.38
1973	1 142 538	604 887	449 346	52.94	39.32	7.74
1974	815 972	413 737	287 993	50.70	35.29	14.01
1975	815 411	254 773	537 306	31.09	65.57	3.34
1976	786 795	177 977	590 105	22.62	75.00	2.38
1977	934 948	186 602	739 614	19.96	79.10	0.94
1978	1 147 637	422 495	699 704	36.81	60.96	2.23
1979	1 653 600	830 796	701 078	50.24	42.39	7.37
1980	2 482 029	1 620 412	701 658	65.28	28.26	6.46
1981	2 710 485	1 656 242	933 894	61.10	34.45	4.45
1982	3 452 663	2 376 665	964 791	68.83	27.94	3.23
1983	3 323 382	2 314 654	918 361	69.64	27.63	2.73
1984	3 712 394	3 018 999	631 129	81.32	17.00	1.68
5-year average						
1975-79	1 068 478	374 528	653 561	32.14	64.60	3.25
1980-84	3 136 190	2 199 194	829 966	69.23	27.05	3.71

^a The Statistics Canada definition of pork exports includes export classes 11-22, 11-24 and 11-29

Source: Carter and Chadee (1984); Statistics Canada cat. no. 65-004.

TABLE 4.4 CANADIAN PORK IMPORTS FROM THE U.S. AND THE REST OF THE WORLD (ROW), 1970-84

Year	Imports		Distribution	
	Total	from U.S.	from U.S.	from ROW
	(cwt)		(%)	
1970	171 012	149 692	87.53	12.47
1971	103 297	83 780	81.10	18.90
1972	283 426	278 366	98.21	1.79
1973	365 190	361 770	99.06	0.94
1974	571 067	566 411	99.18	0.82
1975	884 417	881 856	99.71	0.29
1976	1 822 865	1 726 958	94.73	5.27
1977	1 874 157	1 874 157	100.00	0.00
1978	1 060 932	1 060 688	99.97	0.03
1979	617 677	617 669	99.99	0.01
1980	290 485	288 857	99.43	0.57
1981	355 650	333 756	93.84	6.16
1982	261 955	257 251	98.20	1.80
1983	280 229	280 229	100.00	0.00
1984	230 946	150 168	65.10	34.90
5-year average				
1975-79	1 252 009	1 232 265	98.88	1.12
1980-84	283 853	262 052	91.31	8.68

Source: Carter and Chadee (1986); Statistics Canada cat. no. 65-007.

TABLE 4.5 ECC TRADE IN PORK AND LIVE HOGS, 1979-84^a

	Imports	Exports	Net trade ^b
	(thousand tonnes)		
1979	152	215	63
1980	176	212	36
1981	180	350	170
1982	161	248 ^c	87
1983	67	280 ^c	213
1984	126	404	278

^a carcass weight equivalent of live hogs, of fresh, chilled and frozen pork, and of canned and processed product

^b export minus imports

^c a number of countries placed a ban on imports of fresh, chilled and frozen pork from Denmark

Source: Pugh (1985).

TABLE 4.6 DANISH EXPORTS OF ALL PORK PRODUCTS AND PROPORTION GOING TO ECC AND NON-ECC DESTINATIONS, 1973-84

	Total danish exports	Exports to ECC		Exports to non-ECC	
		Volume	Share	Volume	Share
	(t)	(t)	(%)	(t)	(%)
1973 ^a	539 636	403 368	75	136 268	25
1974	506 518	384 377	76	122 141	24
1975	495 006	379 731	77	115 275	27
1976	457 773	361 762	79	96 011	21
1977	476 749	374 361	79	102 388	21
1978	501 635	399 156	80	102 479	20
1979	563 053	430 768	77	132 285	23
1980	609 834	483 550	79	126 284	21
1981 ^b	643 009	456 023	71	186 986	29
1982 ^b	621 673	509 811	82	111 862	18
1983 ^b	648 503	509 666	79	138 837	21
1984	647 886	396 028	61	251 858	39

^a year in which Denmark joined the ECC

^b due to an outbreak of foot and mouth disease, Denmark was unable to export uncooked pork to North America or Japan from early 1982 to late 1983

Source: Pugh (1985).

TABLE 4.7 PRICE SPREAD BETWEEN U.S. AND CANADIAN MARKETS AND BETWEEN TWO U.S. MARKETS

	Omaha to Toronto	Seven Markets to Toronto	Omaha to Winnipeg	Seven Markets to Omaha
	(Can \$/cwt dressed)		(U.S. \$/cwt live)	
1970				
Q1	-0.44	-0.40	1.76	0.03
Q2	-0.71	-0.40	2.19	0.23
Q3	-0.86	-0.79	2.04	0.05
Q4	-5.53	-5.28	-2.33	0.19
1971				
Q1	-2.72	-2.41	0.48	0.23
Q2	-1.22	-1.01	1.78	0.16
Q3	-0.79	-0.43	0.91	0.27
Q4	-1.74	-1.30	0.66	0.34
1972				
Q1	-1.44	-1.12	2.16	0.25
Q2	-3.04	-2.66	0.16	0.30
Q3	-3.58	-3.25	-0.18	0.26
Q4	-4.85	-4.54	-1.95	0.24
1973				
Q1	-3.59	-3.37	-0.19	0.17
Q2	-1.79	-1.31	2.11	0.37
Q3	-0.33	0.14	3.47	0.36
Q4	-5.19	-4.45	-3.09	0.57
1974				
Q1	-1.90	-1.43	2.00	0.37
Q2	-7.67	-7.03	-4.37	0.51
Q3	-7.22	-6.72	-2.72	0.39
Q4	-6.25	-5.83	-1.65	0.33
1975				
Q1	-4.92	-4.43	-0.52	0.37
Q2	-1.04	-0.53	3.26	0.38
Q3	-1.98	-1.65	1.82	0.25
Q4	-6.99	-6.35	-2.19	0.48
1976				
Q1	-7.25	-6.66	-4.15	0.45
Q2	-5.33	-4.78	-0.93	0.43
Q3	-10.40	-9.83	-5.40	0.45
Q4	-11.01	-10.33	-4.91	0.53
1977				
Q1	-3.34	-3.00	1.46	0.25
Q2	-5.13	-4.63	-0.83	0.37
Q3	-5.10	-4.54	-0.90	0.41
Q4	-4.86	-4.26	-0.86	0.42
1978				
Q1	-0.91	-0.67	4.29	0.17
Q2	2.56	2.85	4.96	0.19
Q3	3.33	3.51	5.53	0.12
Q4	1.74	2.18	0.14	0.28

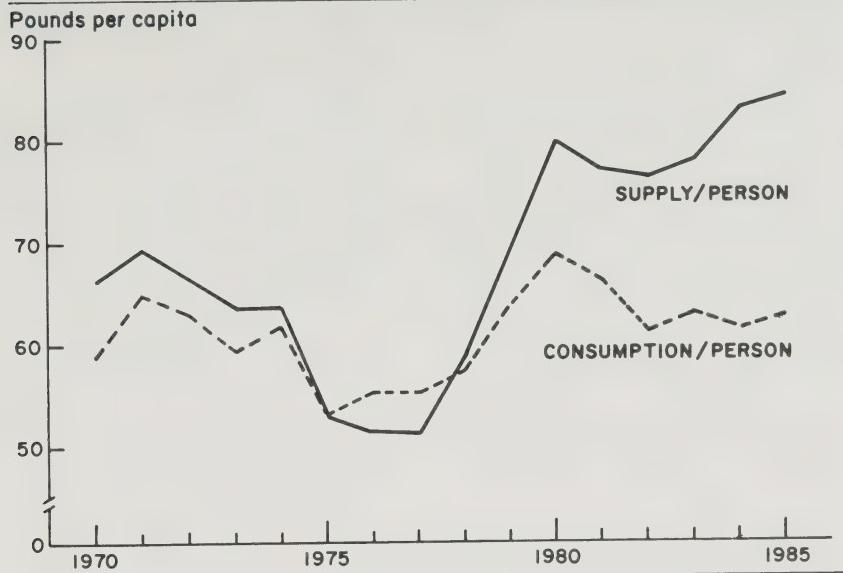
(continued)

TABLE 4.7 PRICE SPREAD BETWEEN U.S. AND CANADIAN MARKETS AND BETWEEN TWO U.S. MARKETS (Concluded)

	Omaha to Toronto	Seven Markets to Toronto	Omaha to Winnipeg	Seven Markets to Omaha
	(Can \$/cwt dressed)		(U.S. \$/cwt live)	
1979				
Q1	6.87	7.26	6.07	0.26
Q2	-0.82	-0.22	-0.42	0.40
Q3	-3.21	-2.60	-3.41	0.40
Q4	-2.38	-1.69	-2.58	0.45
1980				
Q1	1.76	1.89	3.26	0.08
Q2	-3.13	-2.39	1.17	0.48
Q3	2.53	2.80	6.63	0.18
Q4	-1.19	-0.89	2.41	0.19
1981				
Q1	-1.96	-1.88	1.24	0.05
Q2	0.95	1.45	3.75	0.32
Q3	-0.88	-0.30	1.82	0.37
Q4	-4.62	-4.26	-2.42	0.23
1982				
Q1	5.36	5.84	7.86	0.31
Q2	2.93	3.79	6.13	0.53
Q3	4.33	5.35	7.23	0.63
Q4	4.38	4.22	7.98	-0.10
1983				
Q1	4.41	4.76	8.51	0.22
Q2	3.05	2.80	6.95	-0.16
Q3	6.01	5.72	8.21	-0.18
Q4	5.11	5.26	7.41	0.09
1984				
Q1	11.07	11.05	12.77	-0.01
Q2	7.54	8.02	11.14	0.29
Q3	6.65	7.11	11.05	0.27
Q4	9.30	9.57	11.80	0.16
1985				
Q1	10.67	10.83	13.17	0.09
Q2	12.53	12.58	14.63	0.03
Q3	8.23	8.51	11.53	0.16
Q4	8.82	9.05	12.02	0.13

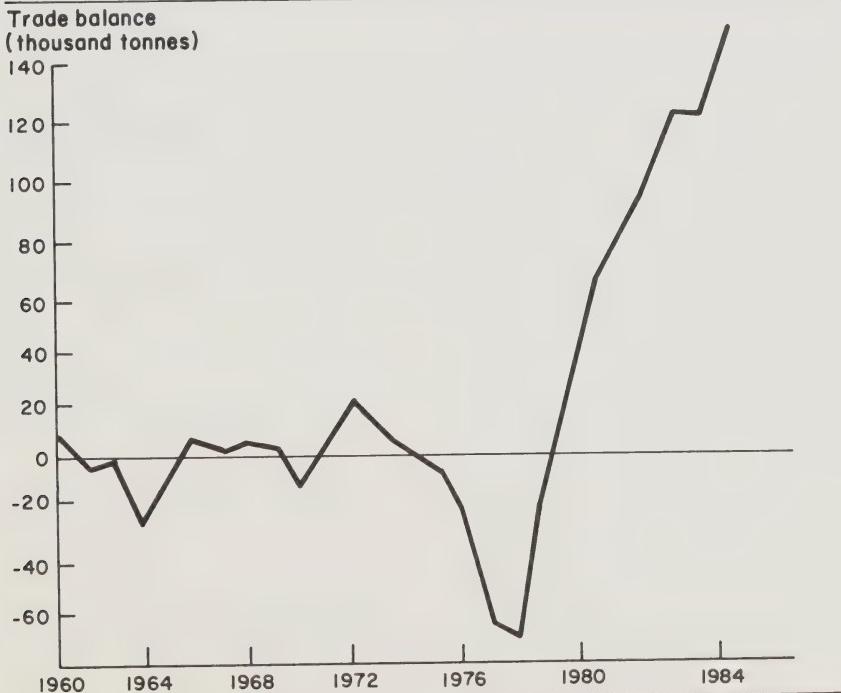
Source: Special tabulations by Agriculture Canada, 1986.

FIGURE 4.1 PER CAPITA PORK SUPPLY AND CONSUMPTION, CANADA,
1970-85



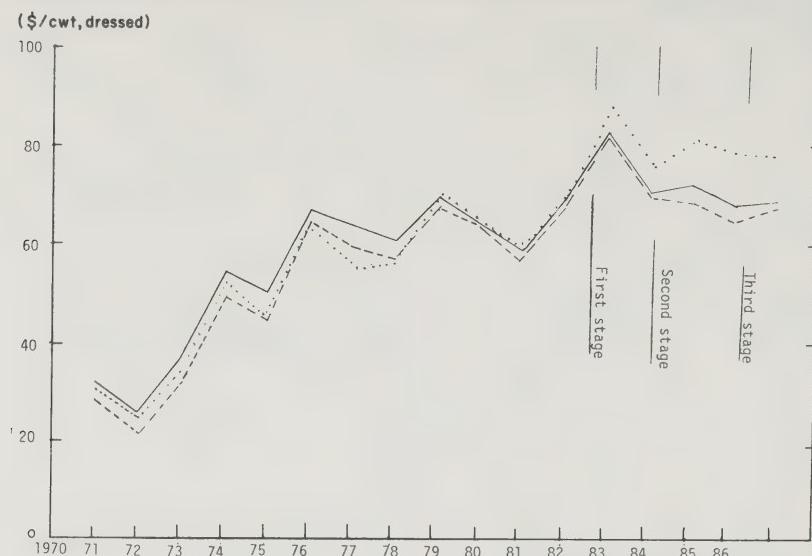
Source: Special tabulation compiled by A.M. Boswell of Agriculture Canada.

FIGURE 4.2 BALANCE OF CANADIAN PORK TRADE WITH THE U.S., 1960-84



Source: Carter and Chadee (1986).

FIGURE 4.3 HOG PRICES IN CANADA AND THE U.S. 1970 TO 1986 (FIRST QUARTER)



Source: Special tabulations by Agriculture Canada, 1986.

CHAPTER 5: INTERPROVINCIAL MOVEMENT OF HOGS AND PORK PRODUCTS IN CANADA

As seen in previous chapters, current production in Canada has almost doubled compared with that in 1975. But production trends during this period varied significantly from one province and/or region to another for various reasons, which in total have perhaps a lot to do with the varying degrees of profitability of hog farming, as perceived in the short run by the farmers themselves, relative to profitability and/or occasions for farm resources in other uses.

Meanwhile increased concentration of slaughtering and/or processing plants continued along with structural changes toward more organized and concentrated marketing systems. These also have had a noteworthy influence on the patterns of trade of hog/pork products between provinces and/or regions of Canada. Most recently, other events such as the wave of strikes and packing plant closings (mostly from 1983 to 1986) and the U.S.-imposed countervailing duties first on hogs (still in effect) and then on pork products (for a short while) also had disturbing effects on both the international flows originating from Canada, and in turn on both traditional and newly emerging interprovincial flows.

Moreover during the 1975-85 decade national consumption of pork product increased by about 50%. Canada then went from a trade deficit position of 3 million pounds of pork (cold carcass equivalent) to a surplus situation of 556 million pounds (see Table 4.1; Carter and Chadee, 1986).

This section takes on the task of evaluating trade flows of hog and pork products within Canada since 1970 (Devine, 1977; Lussier, 1977; Fredeen, 1977). Additional aspects of these trends, as seen from a provincial perspective, are then considered. Finally constraints deemed to interfere with interprovincial movement of hogs and pork throughout Canada are discussed.

INTERPROVINCIAL TRADE FLOWS

Hogs

Data on interprovincial hog shipments are readily available from the Livestock Market Review. It includes estimates of receipts at

public stockyards as well as of shipments direct from producers to packing plants, by province of origin, for each province of destination.

Publicly and uniformly gathered data on interprovincial weaner pigs shipments are unfortunately missing. For this reason the core discussion of interprovincial live animals trade must be limited to slaughter hog trade. Only exceptional comments on weaner pig trade across provinces can be found (The Future of the Industry Committee, 1983; Voisard, 1984).

From an ideal research standpoint, ties between the provinces in intertrading hog/pork products may be examined in terms of two sets of relationships.¹ The first one comprises the flows of hogs from producers to processors. The second is that between the processors and national consumers, with the underlying view that the processing industry has traditionally looked for locations giving strategic access to the national market first. Nowadays, the latter assumption may no longer rest on such a simple and exclusive marketing environment. Moreover, it is very difficult to come to grips with a pragmatic approach to analyze all present market linkages since solid direct estimates of all flows are not available.

A convenient way to summarize the most important trade patterns of the first set is by sorting out major net interprovincial hog trade flows in Canada both in volume and as a percentage of slaughter in those provinces with the highest interprovincial trade deficits. Table 5.1 presents the results of such a calculation for the 1970-85 period.

Since the early 1970s, the Ontario-to-Quebec net hog trade flow has been and has remained the most important of all such interprovincial linkages in Canada from a volume point of view.

The main reasons for these changes are the following. Between 1976 and 1985, production rose by approximately 180% in Ontario, compared with a little more than 200% in Quebec.² However, Ontario packers did not match their Quebec counterparts in terms of growth of killing and/or processing capacity utilized. During the same period, slaughtering in Ontario increased by almost 150% (The Future of the Industry Committee, 1983; Voisard, 1984).

But following the shutdown of the Burns Meats plant in Kitchener in 1984, slaughtering in 1984 and 1985 has been about 500 000 head below the level of 4.2 million head of 1983, or perhaps a more significant 300 000 head below the three-year average of 4.0 million head for the 1980-82 period. Meanwhile Quebec packers were able to slaughter 2.11 times as many hogs in 1985 as in 1976. Thus, despite the fact that Quebec producers raised twice as many hogs in 1985 as in 1976, Quebec has never produced enough hogs to meet its packers' requirements.

The emergence of the Salaison Olympia Group, with at least 60% of sales in export markets up to now, and the addition by Provigo of a meat cutting and processing plant in Montreal have been quite significant in keeping processing capacity ahead of total net inflows of hogs in Quebec.

The Alberta-to-B.C. net hog trade flow has traditionally been the second most important one during this same period, but it differs quite significantly from flows between Ontario and Quebec in at least two major characteristics. First, it is a one-way flow from Alberta to B.C. Secondly, it had been regularly declining from 1970 to 1983 but then regained large momentum in 1984 and 1985, perhaps as a result of the strikes and packing plant closings in Alberta.

The Saskatchewan-to-Manitoba net hog trade flow was the third most important one in 1970. But then it gradually evolved into a more or less two-way equilibrium situation from 1974 to 1983. Despite its most recent resurgence as a net positive flow from Saskatchewan to Manitoba in 1984 and 1985, it now ranks fourth in interprovincial hogs trade volumes in Canada. It has indeed fallen behind a minor Quebec-to-Maritimes net trade flow of the early 1970s, which has reversed since 1980 to turn into an expanding but yet still minor Maritimes-to-Quebec net hog trade flow.

Pork products

No official data on the interprovincial trade in pork products have been produced in Canada since 1970.

But more or less accurate pictures of each province's net pork trade with all others can nevertheless be established by using one of the following estimation procedures:

- the relationship of human population to slaughtering by province and/or region, which gives the general contours of where processing

exceeds or falls below consumption, thereby requiring the movement of pork products from one province to another and/or from one region to another;

- the relationships of pork consumption figures of the urbanized population, extrapolated to whole provinces and/or regions, to slaughtering by province and/or region, which gives a second picture; or
- the relationships of pork consumption figures of some scientifically determined population samples, extrapolated to whole provinces and/or regions, to slaughtering, which gives a third possible estimate.

One may expect the degree of accuracy of such estimates to increase from the first, then to the second and finally to the third one.

A recent general static picture of the situation in 1985 has been drawn by DRIE (1986) with the use of the first method of calculation. The results are shown in Table 5.2

A parallel but dynamic picture of the interprovincial pork trade situation for the entire 1970-85 period has been estimated by Agriculture Canada using the second method. But no static or dynamic estimates of these pork trade flows have recently been calculated by applying the third method from coast to coast. For this reason we have chosen to rely only on Agriculture Canada's estimates.

Provincial slaughter/consumption self-sufficiency ratios for the hog/pork industry, based on these interprovincial pork trade estimates, are presented in a summarized fashion in Table 5.3.

These ratios seem to display two more or less general trends, depending on the subperiod considered. The first one is for the segment extending from 1970 to 1976-77. It shows a widespread decrease of all such provincial pork self-sufficiency ratios, with the exception of Quebec. Part but not all of this can be attributed to the pattern of the hog production cycle then prevailing. The second one is for the 1977-85 subperiod. In turn it shows the trend to be no longer so widespread but reversing toward increasing self-sufficiency ratios, with the exception this time of Alberta, Saskatchewan and also Ontario to a lesser extent.

Overall, they quite strongly indicate that Quebec and Manitoba have lately contributed the most to the expansion of interprovincial trade in pork commodities within Canada, while Ontario and Alberta have barely managed to hold on to their market shares of the mid-1970s.

PROVINCIAL AND REGIONAL PERSPECTIVES

The issue in Canadian interprovincial hog/pork trade that will perhaps draw the most attention from now on is likely provincial adjustments in farm resources devoted to hog production until the end of the 1980s. Closely related to this issue is the changing profile of the processing sector, which is expected to be more and more attracted by the conditions of the most dynamic and the most competitive hog production areas of North America (The Future of the Industry Committee, 1983).

Ongoing and expected issues now facing each province and/or group of provinces on matters having to do with interprovincial hog trade are not altogether clear. This is mainly because all of them come to rest, more or less directly, upon important "exogenous" factors such as the U.S.-Canada trade negotiations and the related issues of countervailing duties (both actual and potential ones), beginning GATT negotiations and finally, the pending resolution of Crow's Nest rail freight rates for grain. These "blurring" factors notwithstanding, the following comments on provincial hog/pork perspectives can be made.

Atlantic provinces

Prior to a surge in production between 1977 and 1984, the Atlantic provinces as a region were net importers of hogs from Quebec, but with some trade taking place both ways (see Appendix K). Since 1980, the opposite has been true. In 1983, 1984 and 1985, hog shipments to Quebec accounted for about 10.5% of regional production. A still larger number of hogs was exported to the U.S., but the most significant increase in shipments went to Quebec.³

The Atlantic picture therefore shows a volatile situation. A recently announced federal program to help the Atlantic provinces to develop their own feedgrain production and/or to improve quality to a greater level might contribute to strengthening the relative position of hog production in this region, if other things remain unchanged. Otherwise, relative regional and/or more strictly provincial profitability of potato production, in view of the pending establishment of a national marketing board for table potatoes, might be the second dominant factor in determining prospective changes in Atlantic hog production.

Quebec

In 1985, Quebec appears to have received 339 900 hogs from Ontario and 60 310 hogs from the Atlantic region. Together these accounted for approximately 8% of Quebec slaughtering in recent years. Given the rapid growth of the hog packing industry in Quebec, it is therefore not surprising that its hog/pork trade with the other provinces has been reversed since 1970, despite a major leap in sales to foreign markets (Appendix L).

Increases in feedgrain production in Quebec has also been quite rapid in the 1970s and early 1980s. This may also have contributed to strengthening the relative position of hog producers in this province.

The Quebec Market Hogs Stabilization Program came into effect in April 1981.⁴ So a major portion of increases in hog production had already taken place. Since the program was developed exclusively for the independent operators, the percentage of total production which was eligible for participation in 1981 was approximately 30% (Owen, 1984). The inclusion of the Coopérative Fédérée in 1982 raised this ratio to about 45% of provincial production then eligible for participation. Some changes in the Quebec Market Hogs Stabilization Program may be forthcoming in the latter part of the 1980s. Parallel changes might also be made to the relative cost of farm credit for various classes of farmers in Quebec. Those programs are currently under review by government officials. Minor and/or major changes in these Quebec programs might have a significant impact on the competitive position of Quebec hog producers in the North American hog/pork industry. But it is too soon to say whether or not changes in these programs will be major or minor ones.

Ontario

Ontario hog producers increased production almost as much as Quebec producers between 1976 and 1985 (180% compared with 200%). But Ontario packers did not join in to match the rate of growth of their Quebec counterparts (Appendix L).

Until 1983, Quebec was the main market for Ontario's surplus hogs but since then a large flow has gone to the U.S. In contrast, hog shipments between Ontario and the Prairies have remained almost nil. Meanwhile Ontario has moved to an export position in corn. This in turn has favored expanded Ontario hog production. Gradually,

Ontario then became a residual supplier of live animals to the major deficit hog production states, most particularly Michigan, Ohio and Pennsylvania, and then even a competitor of surplus hog production states, such as Indiana and Illinois, in those same U.S. deficit states (The Future of the Industry Committee, 1983; OPPMB, 1986).

In 1982-83, Ontario was considered to be approximately self-sufficient in pork products on a total net trade basis. If slaughter capacity is to be increased significantly in Ontario, there are reasons indicating that added killings will likely be shipped to export markets. The conditions under which those sales will take place are therefore crucial for Ontario hog/pork projects in the immediate future.

To our knowledge, no major changes in hog/pork-related provincial programs are in the making in Ontario.

Manitoba

Manitoba's hog production fell sharply in the mid-1970s. But in 1979, it had returned to the level of a little more than one million head (Appendix L). Sudden and fairly large increases from 1983 to 1985 then pushed Manitoba's production to 2.11 and 1.58 times as high as it was in 1976 and 1970, respectively.

Since 1982, Manitoba's surplus hog production has remained at approximately 15% of total production, and most of it is exported to the U.S. Manitoba's present hog marketing system, based on formula pricing with reference to the U.S., is one that has thus been molded to some extent to this reality. Since 1970, Manitoba's packers have produced between two and three times as much as provincial demand. Latest Agriculture Canada estimates indicate that the bulk of this surplus is shipped to other provinces.⁵

Saskatchewan

Saskatchewan is the only province where hog production in 1985 was lower than in 1970. But on closer examination, one sees a 47% increase since 1976, which followed an almost 50% drop between 1970 and 1975. Despite this large variability in production, Saskatchewan has always raised more hogs than the number slaughtered in the province, except during 1976-78 (Appendix L).

The three main markets for Saskatchewan's surplus hogs have traditionally been Alberta, Manitoba and the U.S. Since 1982, the U.S. has

become Saskatchewan's main outside hog market. Previously its hog surpluses had been shipped alternatively to Manitoba in the very early 1970s and to Alberta from then on.

Currently, there seems to be more and more serious consideration given in Saskatchewan to the evaluation of pork trade potential in the Pacific Northwest part of the U.S. (Schmitz, 1984; Carter, 1984; Sorboe, 1979).

Alberta

Hog production in Alberta fell sharply in the mid-1970s and then increased most significantly between 1983 and 1985. From 1970 to 1983, production in Alberta was kept fairly much in line with provincial slaughtering.

But such has not been the case since 1983. The Canada Packers plant in Edmonton closed in 1983, and the Burns plant in Calgary in turn discontinued operations in 1984. This is the main reason why a little more than 20% of hogs produced in this province during 1984-85 were slaughtered in B.C., the U.S. and to a small extent Saskatchewan. The latter was a reversal of usual hog trade patterns with Saskatchewan (Appendix L).

Alberta's surplus in pork products has ranged from 183% to 159% since the sharp reduction in hog production in the mid-1970s. Until 1985, the main market for surplus pork was B.C. In 1985, sales to all outside markets accounted for some 45% of total shipments. This explains why Alberta seems again interested in giving its most serious consideration to the evaluation of the real pork trade potential and constraints in the Pacific Northwest part of the U.S. (Horner, 1981; Kerr, Cullen and Sommerville, 1986).

British Columbia

Analysis of hogs trade in B.C. since 1970 can be broken down into four specific periods. During 1970-75, B.C. received a large number of hogs from Alberta. During 1976-81 this trade almost disappeared. In 1982-83 B.C. shipped more hogs to Alberta and the U.S. than it received from Alberta. Finally, in 1984 and 1985, the trade situation reverted to its position in the early 1970s.

This is explained by the fact that hog production in B.C. displayed a 5.5-fold increase between 1970 and 1985. Slaughterings also rose sharply, increasing 3.3 times during the same period.

THE ISSUE OF INTERPROVINCIAL TRADE BARRIERS

In Canada, most government programs and/or policies, such as collective marketing under regulatory groups, agricultural stabilization, farm credit, crop insurance, transportation and special grants have been identified as containing minor if not major elements of modifying actions being taken against what might otherwise be a more competitive market-oriented system (Menzie, 1982; Menzie and Proulx, 1983). These actions are viewed as being more or less direct, depending upon the agricultural sector considered.

Most analysts tend to agree that there are very few direct government actions taken against the free trading of weanling pigs between provinces, despite the fact that Quebec has basically been the only province since the mid-1970s to receive substantial quantities of weaners from outside its boundaries. It is also generally agreed that only very limited direct government actions may intervene contrary to free trading of slaughter hogs between provinces. Only Newfoundland seems to apply, through provincial government legislation, fairly strict rules for importing any live swine onto the Island.

Thus the central factor must be the nature or the extent of government actions in distorting either Canadian hog producers' input markets (including subsidized credit) and/or the volume of purchases of slaughter hogs by the packing plants in given locations and/or the volume of purchases of pork commodities by final consumers or by the hotel, restaurant and institution group. As a matter of fact it is probably both. But the relative weight of these factors in distorting interprovincial hog/pork trading patterns is not yet very well documented in Canada. Moreover, such indirect government actions may be so encompassing and/or diffuse that their effects are difficult to pin down in pragmatic terms.

It has been argued (Schmitz, 1983) in more general terms that:

Protecting egg producers and others has only a small impact on improving incomes in the Prairies since many of the goods in Canada which are protected by trade barriers are insignificant for the Prairie region. These barriers, in essence, curtail, for example, Canadian shipments of cattle and

pork (in various forms) to the U.S.... Trade liberalization would greatly improve the incomes of Prairie people and for those in all of Canada if appropriate adjustment policies accompanied trade liberalization.

It has also been argued (Menzie, 1982) that:

Elimination of the subsidy (i.e., transportation related to Crow rate) would presumably contribute to an improved system of transport and handling. It would result in cheaper feedgrains on the Prairies, which could be expected to bring some increase in livestock feeding in the area. Increased transport cost would also favor the expansion of some processing industries (...such as packing plants...) on the Prairies.

The reason we quote such leading observers is mainly to illustrate the fact that indirect government actions, more or less related to other sectors that are somehow in close connection with the hog/pork industry, may indeed be viewed as having encompassing impacts on the latter.

The truth of the matter is that, in total, we still know very little about the real net impacts of government actions on the hog/pork sector in Canada. Perhaps the main reason why we know so little about the extent of these impacts, while being able to at least determine their direction, is that the analysis of encompassing intersectoral relationships are very difficult ones to come to grips with. This is true even with the use of the latest and most sophisticated econometric models.

Moreover there are other government actions which perhaps have had an impact on regional aspects of the Canadian hog/pork sector. Even gross figures of their magnitude are hard to get. This also complicates overall evaluation of government involvement in this sector. These are:

- capital grants allocated to the pork processing industry;
- fiscal incentives of a specific and varying nature for new investments and/or modernization of facilities both at the farm and the processing levels;

- capital grants and/or subsidies to help hog producers to comply with environmental regulations, which may differ to some extent from province to province;
- major overall changes in the fiscal legislation such as those which took place in Canada in the early 1970s and which are known to have stirred up agricultural investments in all regions of Canada, but not necessarily to the same extent everywhere; and

- discriminating buying practices used by public institutions at the provincial level.

There are others, but those listed above are perhaps the most important ones having a significant direct and/or indirect impact on the patterns, the volume and/or the value of hog/pork trade between provinces since the early 1970s.

TABLE 5.1 MAJOR INTERPROVINCIAL HOG TRADE FLOWS IN CANADA, 1970-85

	From Alberta to B.C.		From Saskatchewan to Manitoba		From Ontario to Quebec		From Maritimes to Quebec	
	Net shipments	Share of B.C. slaughter	Net shipments	Share of Manitoba slaughter	Net shipments	Share of Quebec slaughter	Net shipments	Share of Quebec slaughter
	(000)	(%)	(000)	(%)	(000)	(%)	(000)	(%)
1970	101.5	60.9	147.3	11.9	163.3	8.6	-10.5	N.A.
1971	96.5	53.8	49.3	13.9	140.6	6.8	-13.6	N.A.
1972	66.6	53.7	47.8	3.7	150.6	7.4	-7.4	N.A.
1973	51.0	50.3	19.8	1.6	131.5	6.4	-3.9	N.A.
1974	42.8	37.8	0.7	0.0	54.6	2.3	-6.3	N.A.
1975	26.0	28.1	-5.3	N.A.	42.5	1.8	-5.5	N.A.
1976	5.5	7.7	-18.6	N.A.	76.5	3.2	-3.6	N.A.
1977	3.5	4.3	-5.0	N.A.	85.5	3.2	-4.6	N.A.
1978	5.9	5.7	-34.6	N.A.	160.6	5.0	-1.3	N.A.
1979	9.8	6.6	-1.0	N.A.	231.1	5.7	0.3	0.0
1980	1.9	0.7	-0.8	N.A.	122.6	2.5	9.7	0.2
1981	5.5	N.A.	-1.8	N.A.	187.5	3.8	11.6	0.2
1982	-25.7	N.A.	-0.7	N.A.	132.3	2.8	14.4	0.3
1983	2.0	0.6	0.7	0.0	123.4	2.6	61.5	1.3
1984	156.4	40.0	29.9	2.4	272.5	5.5	66.0	1.3
1985	199.0	36.3	49.8	3.2	339.9	6.7	60.3	1.2

N.A. Not applicable

Source: Agriculture Canada, "Interprovincial Movement of Hogs and Pork," Ottawa, July 1986.

TABLE 5.2 COMPARISON OF DISTRIBUTIONS OF POPULATION AND PORK SLAUGHTER, CANADA, 1985

	Human population		Pork slaughter
			(%)
British Columbia	11.6		2.1
Alberta	9.4		12.4
Saskatchewan	4.0		4.1
Manitoba	4.2		8.4
Ontario	35.4		31.5
Quebec	26.3		37.3
Atlantic	9.1		4.1

Source: DRIE (1986).

TABLE 5.3 RATIO OF HOG SLAUGHTER TO PORK CONSUMPTION, BY PROVINCE, 1970-85

	B.C.	Alberta	Saskatchewan	Manitoba	Ontario	Quebec	Atlantic provinces
1970	0.23	2.36	1.99	3.29	1.00	0.71	0.44
1971	0.21	2.58	2.32	3.56	0.93	0.70	0.39
1972	0.15	2.55	2.57	3.06	0.91	0.77	0.36
1973	0.12	2.51	2.66	3.12	0.91	0.86	0.37
1974	0.12	2.06	2.46	2.74	0.86	0.95	0.32
1975	0.11	1.79	1.75	2.28	0.88	1.13	0.35
1976	0.08	1.63	1.61	2.07	0.81	1.09	0.32
1977	0.09	1.66	1.57	2.06	0.77	1.16	0.32
1978	0.11	1.69	1.76	2.01	0.84	1.41	0.35
1979	0.13	1.71	1.59	2.28	0.89	1.53	0.37
1980	0.21	1.84	1.44	2.28	0.94	1.67	0.41
1981	0.26	1.73	1.33	2.30	0.91	1.73	0.46
1982	0.25	1.66	1.53	2.33	1.02	1.80	0.54
1983	0.27	1.63	1.45	2.44	1.03	1.72	0.50
1984	0.42	1.59	1.82	2.68	0.92	1.86	0.56
1985	0.45	1.74	1.86	3.12	0.88	1.86	0.53

Source: Agriculture Canada, "Interprovincial Movement of Hogs and Pork," Ottawa, July 1986.

CHAPTER 6: PRICING IN THE CANADIAN HOG INDUSTRY

The annual volume of business handled by the hog marketing boards in Canada is well in excess of \$1 billion and represents nearly two thirds of all hog marketings in Canada. The remaining hogs, the bulk of which are produced in Quebec, are marketed through a variety of channels.

Various practices exist among the various hog marketing boards with respect to the methods used for the pricing of hogs.

We will first discuss the pricing methods used in Ontario, Manitoba and Alberta because the other provinces, to a greater or lesser degree, use these three major hog markets as the reference point for the pricing of their own hogs (Gilson, 1982).¹

ONTARIO

In Ontario, hogs are sold to provincial packing companies on a Dutch auction basis (successively lower price offers with the first bidder being the buyer) using a network of remote teletype machines operated by the Ontario Pork Producers' Marketing Board, in the following manner:

- The board operates, by lease or ownership, 45 market yards throughout the province. All hogs must be offered through these yards and all packers must buy Ontario-produced hogs from these yards.²
- The producer may deliver the hogs in his own conveyance, as 50% do, or hire a public carrier.
- The hogs are tattooed at the farm or the yard for proper identification of the carcass on the kill rail in the plant. Important services, besides tattooing, performed at the yard are weighing and the issuance of receipts.
- The yard management informs the sales office in Toronto of arrivals.
- The hogs are offered in lots through a unique system which combines the good features of personal negotiations and the mechanical efficiency of electronic bidding. The master teletype machine, an electronic broadcast repeater in the sales offices of the board, communicates the details of each offering to

11 buying machines located on the premises of each qualified processor. Each sale is usually completed in less than 30 seconds and is confirmed over a two-way circuit between the buyer and the agency.

- Processors with under 1% of the Ontario kill who cannot afford the cost of individual teletype installations can enter bids for any lot of hogs offered over the teletype circuit. The board, using a packer's teletype, an eleventh buying machine installed in its offices, bids for the hogs on their behalf.
- The board's salesmen control selling price at all times through a specially selected price tape inserted in the master teletype. This tape allows the salesmen to determine beforehand the acceptable price range for each successive offering. The board reserves the right to reject any bid (a) when the buyer is not in a position to slaughter hogs promptly or (b) when the buyer cannot furnish proof of financial responsibility (refer to pamphlet "Conditions of Sale" for description and liability).
- When each lot of hogs is sold, the yard's management arranges transportation by public carrier paid for by the buyer.
- All data from worksheets are keypunched and fed to the computer which checks the information on the manifest, which has been keypunched earlier.
- The settlement statement and cheque, less market service charge,³ trucking and any other charges, are mailed to the producer.
- Weekly single hog price pooling was initiated September 30, 1974, to make possible long-term contracts for offshore export.

The number of Ontario packing companies with buying machines is five. The OPPMB's market service charge is 1.0% of producer market return (OPPMB, 1982).

In addition, the board staff person operating the additional buying machine in the board office purchases hogs for packers in the province of Quebec as well as in the United States. All market hogs sold by Ontario producers are offered for sale through this teletype auction system.

Although U.S. packer price offers are converted to a dressed carcass equivalent in Canadian currency for purposes of determining whether they are high enough for the American companies to receive any Ontario hogs, the Ontario board nevertheless sells to the American buyers on a U.S. dollar per hundred-weight live basis delivered to the plant FOB. However, the weight of the animal on which the U.S. packer is invoiced is the weight at the marketing yard in Ontario, that is, prior to any in-transit shrinkage that is likely to occur.

MANITOBA

The Manitoba Hog Producers' Marketing Board is the sole selling agent for commercially produced hogs in Manitoba. It is run for pork producers, by pork producers, to sell pigs at a pool price in domestic and export markets.

For market hogs, producers receive the daily weighted average price for all sales made to local packers and export markets by the board that day.

For sows and boars, the producer price is based on the dressed weight of the carcass, if they are sold domestically. Sows sold for export are priced on the basis of an equivalent live weight price (dressed price x 0.8).

Beginning in 1972, the board sold hogs in lots to the highest bidders using a teletype system.

Following negotiations with Manitoba packers in 1978, the bid system was replaced by a Dutch Clock auction system, which is still used today.

The present system for hogs sold domestically is based on one-day forward deliveries with sales scheduled at 2 p.m. Monday through Thursday and 11 a.m. Friday. Hogs are offered to packers in lots of approximately 100 head, basis the Winnipeg yard, or "on trucks" in which case they are sold before they are unloaded, or in lots of 200 from Brandon. All sales are basis FOB Winnipeg.

The auction takes place in the board's facilities. Buying desks accommodating representatives of up to 10 packers and the board's order buying department are connected to the large Dutch Clock mounted on the front wall of the sales room. Board sales staff operate the sale from an auction console which connects the clock and each buyer's bid machine.

In a typical sale, buyers receive a description of the lot being offered and a starting or asking

price. To start the sale the operator on the console activates the clock.

With the passing of each few seconds the asking price is dropped five cents per hundred-weight. The price continues to drop until one of the buyers pushes his bid button to stop the sale.

When one button is pushed, the clock stops immediately and the name is transmitted, by codes and lights, to the auction console. The sale price is posted for everyone to see but the name of the buyer remains confidential.

The electronic circuitry in the auction system is so sensitive that it will not accept a tie bid. The first to touch the button buys the pigs. It takes about 30 seconds to sell each lot. The daily sale is over in about 30 minutes.

For live hogs exported to the United States, the price and quantity are established through direct negotiations between the U.S. packer and the Manitoba Hog Producers' Marketing Board. U.S. hog market prices serve as the key reference point in the determination of the price. The Manitoba board sells live hogs to American packers on a live weight, grade and yield basis in U.S. dollars, FOB the U.S. plant.

ALBERTA

The Alberta Pork Producers' Marketing Board operates an advance bidding system whereby buyers transmit their bids for hogs to the board's sales office before 9 a.m. each day Monday through Friday via electronic communication.

The computer-assisted system is designed such that the board does not have access to the information until 9 a.m., at which time it reviews the bids, which are already ranked by the computer in order of price from highest to lowest.

Within minutes, each buyer is advised via computer terminal of the number of hogs being awarded at the accepted tender prices. A rebid session is held thereafter where buyers have the opportunity to submit additional bids for hogs not already allocated in the first session.

For sales by the Alberta board to the United States, the hogs are sold on a U.S. dollar per hundredweight live basis, delivered to the U.S. plant. The terms of sale are settled prior to shipment, as in all other provinces with marketing boards exporting live to the United States, and the price is determined in relation to prevailing prices for hogs of U.S. origin.

BRITISH COLUMBIA

The British Columbia Hog Marketing Commission sells hogs for the producers through individual contracts with packers either as percentages of total marketings handled by the commission (larger plants) or for set volumes (smaller buyers). The price is determined by a formula which currently works off the Alberta price (Edmonton plus \$3.20 per hundredweight).

SASKATCHEWAN

The Saskatchewan Pork Producers' Marketing Board utilizes two different arrangements for selling hogs for their producers. The first is one of individual contracts between the board and certain Canadian packers for certain percentages of the total marketings of Saskatchewan producers. Conditions of sale are determined between the board and the participating packer. The prices paid for the hogs are determined by a formula based on the Ontario, Manitoba, Alberta and Omaha daily prices.

The second procedure for marketing Saskatchewan hogs is through individual private treaty sales for individual lots of hogs between the Saskatchewan board and some smaller domestic packers but, more importantly, with U.S. packing plants. As is the case for all of the other provincial producer marketing agencies, sales of hogs to U.S. buyers are on a U.S. dollar per hundredweight live basis, delivered to the American plant.

ATLANTIC PROVINCES

In the Atlantic provinces, pricing mechanisms for slaughter hogs have traditionally taken on some of the characteristics of formula pricing.

From a descriptive viewpoint, the term "formula pricing" conveys the idea of price discovery via a mathematical equation or more simply of some more or less precise way to obtain "the" price. Under "formula pricing" a transaction price usually equals a base price plus or minus differentials for location, quality, and "other terms of trade." Moreover, the base price for the formula is normally available to both the sellers and the buyers at little or no cost. The differentials are negotiated once with the intent of applying the formula to a series of subsequent transactions. The frequency and method of changing the formula itself and/or its components such as the differentials can vary

greatly. Atlantic pricing mechanisms for slaughter hogs are changed from time to time but without formalized rules.

In the Maritimes, administrative coordination under hog and/or pork commodities marketing boards has gradually formalized the known methods used in these provinces for arriving at the transaction price prior to delivery of the product, without the ambiguity implicit in haggling.

However, the bases of these formulas do not differ greatly from one Atlantic province to another. Under present conditions, the price for slaughter hogs in P.E.I. is established each current week on the basis of Monday-Tuesday-Wednesday-Thursday (morning) Ontario weighted average price. Accordingly, it is the mean of the Ontario average price to producers for the first three and a half days of the week on which the price is being determined. Adjustments are made for items which can be classified under "other terms of trade," in defining formula pricing. In P.E.I. the net amount received by hog producers for hogs shipped under the P.E.I. Hog Commodity Marketing Board may be adjusted for custom/hired trucking, amount of government subsidy to help equalize real transport costs for specific origin of shipments, and finally for some amount retained per hog sold through the board for contribution to acquisition of assets by hog producers in a portion of the slaughter and processing capacity on the island.

In Nova Scotia, the basis established by the Pork Producers' Marketing Board for slaughter hogs originating in the province and sold in any week has just recently been changed (June 1986). The price established by the Nova Scotia board for Nova Scotia's producers hogs in any week is equal to the average weekly Ontario producer price of the week before last. The "other terms of trade" adjustments which may be introduced in Nova Scotia in calculating net price paid to hog producers are for organized marketing expenses under the board. Some public subsidies intended to help cover part of the transportation costs from the farms to the killing plants may also have a small influence on the net price received by farmers in Nova Scotia.

In New Brunswick, the price established by the New Brunswick Hog Marketing Board for New Brunswick producers' hogs sold in any week is set equal to the average of Ontario producer prices of the last week. Transportation

costs are fully pooled under the board, and some public help is available at times to cover part of those marketing costs. Other adjustments to the formula price to obtain the farmers' net price are made for organized marketing expenses under the supervision of the board.

QUEBEC

In Quebec, pricing mechanisms for both slaughter hogs and feeder pigs have been traditionally known to have taken on some but not all of the usual characteristics of formula pricing, but with major differences with the other provinces. Except for Quebec, there is indeed essentially only one major type of marketing channel for slaughter hogs in Canada: hog producers sell their hogs through the marketing office of their respective provincial hog marketing boards.

Under present conditions hog slaughtering plants in Quebec generally use some averaging process for the Monday-to-Wednesday publicly available Ontario prices as a reference or a base price. This reference or base price is then used to establish their own price for the pending weekly killings directly with each seller but within some formal negotiating process with the *Fédération des Producteurs de Porcs du Québec* since 1979.

The existence of a somewhat similar type of pricing mechanism for feeder pigs has been documented in Quebec. However, because the derived demand for feeder pigs is fairly volatile, feeder pig prices seem to vary greatly around a presumed formula price (50% of the Toronto price per hundredweight for slaughter hogs). These variations appear to be related to slaughter hog prices prevailing in the province, feed prices, and quality and origin of the animals. The prices also vary in relation to the proportion of total supply which, at a given point in time, comes from specialized feeder pig producers from Quebec and from outside of Quebec. This category of feeder pig suppliers is probably in closest touch with other buyers and sellers in Quebec and elsewhere, within this rather thin price discovery process.

As a result of the growing use of direct sales from slaughter hog producers to the slaughter plants located in Quebec, smaller and smaller proportions of slaughter hogs originating from Quebec have been priced through auctions, especially during the last decade compared with earlier periods. For instance, it has been

estimated that the percentage of hogs killed in inspected killing establishments in Quebec that have gone through auctions has declined from 11.9% in 1976 to about 3.5% in 1982. It is no surprise, then, that no officially recorded price is made public for Quebec slaughter hogs any more.

Traditionally there has been a negative price spread between the Ontario and Quebec slaughter hogs prices, at least since the Toronto price has come to exist as a formal basis for pricing in other Canadian markets. Because Quebec was a hog/pork deficit province until the late 1970s, it was the size of this negative price spread that created the greatest concerns among most Quebec hog producers. The cost of transferring slaughter hogs from Ontario's main production regions to a typical Quebec slaughter plant in the Montreal area was viewed as the norm against which to compare expected price spreads. The various means used to help the producers gain more market power were designed to keep this price spread as narrow as possible, despite the occasional premiums being paid by various killing plants, especially during the bottom side of the production cycle.

Since Quebec has become a province of large net surplus production and perhaps also because vertical integration of slaughter hog producers (mostly by feed mills) has gained so much momentum in this province, the issue of a most appropriate pricing mechanism for the Quebec hog/pork industry has taken on additional significance. This issue has been of particular concern to the nonintegrated group of producers and perhaps even to the integrated groups more recently. The underlying assumption of some groups of producers in Quebec seems to be that pricing efficiency is now more closely related than ever before to the right choice of pricing mechanism.

This issue has led Quebec and the rest of eastern Canada's producers to recognize the pros and cons of other pricing alternatives besides the type of formula pricing presently dominant in the Quebec hog/pork industry. But this complex issue is a four-pronged one. Firstly, research on pricing hogs in Quebec is needed to estimate the errors, if any, in pricing live animals in the province relative to their carcass value after local slaughter, including real values of export cuts on the most lucrative export markets, based on the grade and yield of these carcasses. It is particularly important for Quebec producers that the more prominent pork export markets be

taken into serious consideration in such calculations, since Quebec has already demonstrated that it can be a steady and reliable supplier of the U.S. east coast market as well as that in Japan.

Secondly, research on the pricing of pork commodities from Quebec origin relative to the true comparative value of the same products after slaughter on the east coast of the U.S. is needed to estimate the errors, if any, in pricing live animals in the province, taking into full account differences in cuttability of carcasses from Quebec origin, compared with their U.S. counterparts. Presumably, the ultimate intent of such research could be to determine the extent to which the so-called "leanness advantage" of Canadian pork commodities over like U.S. products is real, or whether it is a purely academic issue, as many managers of slaughter and processing plants seem to argue in Canada at the present time. This pricing issue is perhaps a more important one for Ontario than for Quebec since, as we have already shown, most exports of live animals from Canada to the U.S. originate in Ontario.

Thirdly, the development of a pricing mechanism in Quebec, which would encourage a more aggressive price discovery process for expansion of provincial consumption, seems a top priority for research in this province. Indeed consumption of pork commodities per capita in Quebec seems to have remained slightly lower than the Canadian average throughout the last decade.

Fourthly, the category we have called the "other terms of trade" differential, compared with the straight basis of formula pricing, may be actually more important in the Quebec hog pricing system than in that of the other provinces. It may include producers' direct compensation negotiated individually with the plant for their own transportation and/or lowered price exemption for hogs graded under the basic reference point on the carcass classification index for individual producers, under certain circumstances.

It could be argued, accordingly, that these basic discrepancies indicate the advantages and need to establish a new pricing method for live hogs in Quebec, in parallel to that in other markets now existing in North America. However, this is only a general observation at this stage rather than a conclusion drawn from our own formal research specifically taking into account the transaction costs involved. Indeed,

formal discussion of the pros and cons of having a new slaughter hog market established in Quebec are currently under way, under the sponsorship of the *Fédération des Producteurs de Porcs du Québec*.

Finally, it could be argued, perhaps, that under any foreseeable circumstances, Quebec producers may have a vested interest in helping the authorities of the Ontario market to keep on fine tuning the price discovery process of that central market in order to make it as representative as possible of the current economic conditions of the North American hog/pork industry, precisely because Ontario prices are used as a basis for setting prices in Quebec. For instance, such changes as relative reductions of early-in-the-week shipments within a larger process of improved orderly operation of assembly yards in Ontario might have net advantages for Quebec's own price discovery process under present circumstances, at least from the producers' point of view.

INTERPROVINCIAL PRICE SPREADS

Interprovincial price spreads generated considerable controversy in Canada during the 1970s.

In theory, if a market is linked by a competitive transportation system, if there are no impediments to interprovincial or interregional trade flow, and if the market itself is truly competitive, prices at a deficit market should, on average, not exceed those at a surplus market by more than transportation and handling costs for the product being moved from one market to another.

Considerable debate centered around the unduly large price spreads which occurred from time to time between the eastern and western markets in Canada. No conclusive evidence was produced to determine whether the occasional and unduly wide spreads were due to a lack of competition among buyers, or whether the differentials were due to other complex and competitive factors impinging on the Canadian hog marketing system.

Some indication of the prices for hogs (per hundredweight dressed weight) at the various Canadian markets for the 1970-86 period is shown in Tables 6.2 and 6.3 and in Figures 6.1 to 6.9.

While the western Canadian Hog market prices have traditionally been below the Toronto market, the appearance of the "inverse" market

spread in 1979 (western market prices above the Toronto market) requires further examination. Several factors appear to have caused this unexpected inversion:

- In 1977 and 1978 Quebec moved from a position of deficit to surplus in terms of provincial production and consumption of pork; Ontario's pork deficit dropped significantly in 1978.
- In 1979, the Alberta Hog Producers' Marketing Board, together with Gainers Ltd. and Swift's Canadian Co. Ltd., signed a 20-month contract for the export of 188,000 hogs to Japan.
- In April 1979, the Manitoba Hog Board in cooperation with the Alberta Board and the Saskatchewan Hog Marketing Commission delivered 450 tonnes of frozen pork to the Livestock Industry Development Corporation in Korea.

- In addition to the above contracts, the Manitoba Board was active in making spot sales of pork to the U.S. (New York and California), England, Japan and in New Zealand.

In general, the shift from provincial pork deficits in Quebec and Ontario to a position of surplus appeared to have a relative depressing effect on hog prices in central Canada, while at the same time the aggressive export marketing activity in the Prairie provinces appeared to strengthen prices in that region of the country in the short run.

However, this inverted price spread between eastern and western Canada did not persist for long. The relatively higher prices in western Canada soon attracted competition from the east. For example, Quebec processed pork products began to appear in western food retail stores.

TABLE 6.1 CHARACTERISTICS OF WESTERN PROVINCIAL HOG MARKETING ARRANGEMENTS

Characteristic	Ontario	Manitoba	Saskatchewan	Alberta	B.C.
Current pricing mechanism	Teletype	Dutch clock	Contract and private treaty sales based on formula pricing ^a	Advance bidding	Contracts based on formula pricing ^b
Producer price received	Weekly single hog price pool	Daily weighted average price	Weekly pool price	Daily weighted average price	Weekly weighted average price
Assembly yards ^c	45 yards	2 yards: Winnipeg and Brandon	14 yards	5 board yards and other private yards, trucker yards	None
Transportation arrangements	Producer pays costs to yard. Packer pays from yard to plant	Producer pays costs packers. Packers located in Winnipeg	Producer pays costs to yard. Yard charge covers any additional distance.	Producer pays costs to the closest FOB point (1) Edmonton (2) Red Deer. Pool Fund covers any additional distance	Producer pays costs directly to packers
Board levies (1986)	1% of producer market returns	1% of producer market returns	1% of producer market returns	\$1.25 per hog (\$0.25 promotion)	\$1.00 per hog
Number of buyers	4 major packers, several smaller buyers	5 packing plants (3 major, 2 others)	1 major packer	2 packers	1 major packer 9 others
Export arrangements	Board staff person operating an additional buying machine purchases hogs for Quebec and U.S.	Direct negotiations. Price in relation to prevailing U.S. price	Individual private treaty sales	Spot Sales. Based on daily U.S. price	No exports - Supply only 25% of domestic demand
Index premiums for grading	Yes	Yes	Yes	Yes	Yes

^a formula based on Ontario, Manitoba, Alberta and Omaha daily prices and a weekly wholesale price

^b formula based on Edmonton, Alberta, price

^c yard functions: tattooing, weighing, issuing receipts

TABLE 6.2 CANADIAN PRICES FOR HOGS, VARIOUS MARKETS, 1970-86

	Toronto	Edmonton	Saskatoon	Winnipeg	New Brunswick	Quebec ^a
(cwt, dressed)						
1970						
Q1	38.20	34.60	34.90	36.00	37.06	
Q2	33.30	29.60	29.30	30.40	32.33	
Q3	30.60	27.40	26.90	27.70	29.56	
Q4	27.00	23.40	22.50	23.80	26.25	
1971						
Q1	25.50	21.70	21.10	22.30	25.04	
Q2	23.70	19.80	19.60	20.70	23.20	
Q3	26.00	22.60	23.10	24.30	25.35	
Q4	27.40	24.60	23.80	25.00	27.77	
1972						
Q1	33.20	28.00	28.50	29.60	31.44	
Q2	34.80	29.70	30.30	31.60	34.01	
Q3	39.90	35.20	35.10	36.50	38.99	
Q4	41.70	37.90	37.80	38.80	40.97	
1973						
Q1	49.60	43.90	44.80	46.20	48.25	
Q2	49.10	43.90	43.50	45.20	47.92	
Q3	63.50	59.10	58.80	59.70	61.28	
Q4	57.70	54.00	55.00	55.60	58.88	
1974						
Q1	50.30	46.20	45.90	46.40	42.50	
Q2	42.30	36.90	38.10	39.00	42.80	
Q3	53.30	48.60	46.40	48.80	52.60	
Q4	56.10	51.80	51.30	51.50	55.21	
1975						
Q1	55.60	51.70	50.90	51.20	53.52	
Q2	61.60	57.20	56.50	57.30	59.48	
Q3	80.30	77.20	76.30	76.50	77.26	
Q4	75.50	71.90	71.90	70.70	74.71	
1976						
Q1	69.00	68.80	66.50	65.90	68.75	
Q2	67.40	64.00	63.10	63.00	67.70	
Q3	65.70	60.70	60.60	60.70	66.38	
Q4	54.30	48.80	49.00	48.20	53.40	
1977						
Q1	55.30	53.50	51.80	50.50	54.42	
Q2	60.40	55.90	56.10	56.10	58.23	
Q3	65.40	60.60	61.10	61.20	64.68	
Q4	63.40	59.50	59.40	59.40	62.32	
1978						
Q1	69.00	65.20	64.10	63.80	69.29	
Q2	67.30	67.70	65.50	64.90	66.38	
Q3	68.30	69.70	66.90	66.10	65.77	
Q4	74.60	77.00	76.50	76.20	74.66	

(continued)

TABLE 6.2 CANADIAN PRICES FOR HOGS, VARIOUS MARKETS, 1970-86 (Concluded)

	Toronto	Edmonton	Saskatoon	Winnipeg	New Brunswick	Quebec ^a
(cwt, dressed)						
1979						
Q1	73.10	74.90	74.20	73.90	72.58	69.95
Q2	65.00	65.20	64.50	64.60	64.00	62.48
Q3	61.10	62.10	61.30	61.30	60.21	58.48
Q4	57.00	57.40	57.00	57.20	55.68	55.00
1980						
Q1	52.80	53.00	51.80	51.30	52.18	51.75
Q2	49.80	45.30	44.80	45.50	48.14	47.84
Q3	66.80	62.90	62.70	62.70	64.95	63.95
Q4	72.00	69.40	68.70	68.40	70.87	70.08
1981						
Q1	65.40	61.80	61.60	62.20	64.52	64.39
Q2	66.50	63.90	63.10	63.70	65.91	65.00
Q3	79.50	77.30	76.80	76.80	78.67	76.82
Q4	70.10	69.90	68.30	67.90	68.86	67.53
1982						
Q1	69.90	68.00	67.40	67.40	70.31	67.75
Q2	87.20	85.00	84.80	84.00	86.52	85.98
Q3	95.30	93.90	92.40	92.40	94.29	93.08
Q4	83.80	82.60	80.90	80.20	83.13	80.85
1983						
Q1	83.10	81.20	79.50	79.00	82.04	80.83
Q2	71.80	68.90	67.90	67.90	71.10	69.46
Q3	69.20	68.50	67.40	67.00	68.11	66.80
Q4	62.70	61.50	60.20	60.40	64.50	60.77
1984						
Q1	67.00	64.80	64.60	65.30	66.74	65.52
Q2	73.90	69.30	69.50	70.30	72.20	71.38
Q3	80.00	73.90	74.80	75.60	79.45	78.68
Q4	72.20	67.30	68.50	69.70	71.42	70.36
1985						
Q1	72.10	67.60	69.30	69.60	72.26	70.27
Q2	64.10	60.50	60.60	62.00	62.97	61.92
Q3	68.50	64.70	64.70	65.20	68.05	65.98
Q4	71.60	68.80	68.20	68.40	70.90	68.86
1986						
Q1	70.00	67.80	67.10	67.40		67.93

^a Quebec prices not available before 1979

Source: Quebec - *Fédération Des Producteurs De Porcs Du Québec*;
 New Brunswick - New Brunswick Hog Marketing Board;
 Toronto, Edmonton, Saskatoon and Winnipeg: Agriculture Canada, Livestock and Meat Trade Report.

TABLE 6.3 PRICE SPREADS BETWEEN TORONTO AND MAJOR CANADIAN AND U.S. MARKETS, 1970-86

	Edmonton	Saskatoon	Winnipeg	New Brunswick	Quebec	Omaha	Seven Markets (U.S.)
(\$/cwt, dressed)							
1970							
Q1	3.60	2.20	3.30	1.14		0.44	0.40
Q2	3.70	2.90	4.00	0.97		0.71	0.40
Q3	3.20	2.90	3.70	1.04		0.86	0.79
Q4	3.60	3.20	4.50	0.75		5.53	5.28
1971							
Q1	3.80	3.20	4.40	0.46		2.72	2.41
Q2	3.90	3.00	4.10	0.50		1.22	1.01
Q3	3.40	1.70	2.90	0.65		0.79	0.43
Q4	2.80	2.40	3.60	-0.37		1.74	1.30
1972							
Q1	5.20	3.60	4.70	1.76		1.44	1.12
Q2	5.10	3.20	4.50	0.79		3.04	2.66
Q3	4.70	3.40	4.80	0.91		3.58	3.25
Q4	3.80	2.90	3.90	0.73		4.85	4.54
1973							
Q1	5.70	3.40	4.80	1.35		3.59	3.37
Q2	5.20	3.90	5.60	1.18		1.79	1.31
Q3	4.40	3.80	4.70	2.22		0.33	-0.14
Q4	3.70	2.10	2.70	-1.18		5.19	4.45
1974							
Q1	4.10	3.90	4.40	7.80		1.90	1.43
Q2	5.40	3.30	4.20	-0.50		7.67	7.03
Q3	4.70	4.50	6.90	0.70		7.22	6.72
Q4	4.30	4.60	4.80	0.89		6.25	5.83
1975							
Q1	3.90	4.40	4.70	2.08		4.92	4.43
Q2	4.40	4.30	5.10	2.12		1.04	0.53
Q3	3.10	3.80	4.00	3.04		1.98	1.65
Q4	3.60	4.80	3.60	0.79		6.99	6.35
1976							
Q1	0.20	3.10	2.50	0.25		7.25	6.66
Q2	3.40	4.40	4.30	-0.30		5.33	4.78
Q3	5.00	5.00	5.10	-0.68		10.40	9.83
Q4	5.50	6.10	5.30	0.90		11.01	10.33
1977							
Q1	1.80	4.80	3.50	0.88		3.34	3.00
Q2	4.50	4.30	4.30	2.17		5.13	4.63
Q3	4.80	4.20	4.30	0.72		5.10	4.54
Q4	3.90	4.00	4.00	1.08		4.86	4.26
1978							
Q1	3.80	5.20	4.90	-0.29		0.91	0.67
Q2	-0.40	2.40	1.80	0.92		-2.56	-2.85
Q3	-1.40	2.20	1.40	2.53		-3.33	-3.51
Q4	-2.40	-1.60	-1.90	-0.06		-1.74	-2.18

(continued)

TABLE 6.3 PRICE SPREADS BETWEEN TORONTO AND MAJOR CANADIAN AND U.S. MARKETS, 1970-86 (Concluded)

	Edmonton	Saskatoon	Winnipeg	New Brunswick	Quebec	Omaha	Seven Markets (U.S.)
(\$/cwt, dressed)							
1979							
Q1	-1.80	-0.80	-1.10	0.52	3.15	-6.87	-7.26
Q2	-0.20	0.40	0.50	1.00	2.52	0.82	0.22
Q3	-1.00	-0.20	-0.20	0.89	2.62	3.21	2.60
Q4	-0.40	-0.20	0.00	1.32	2.00	2.38	1.69
1980							
Q1	-0.20	1.50	1.00	0.62	1.05	-1.76	-1.89
Q2	4.50	4.30	5.00	1.66	1.96	3.13	2.39
Q3	3.90	4.10	4.10	1.85	2.85	-2.53	-2.80
Q4	2.60	3.60	3.30	1.13	1.92	1.19	0.89
1981							
Q1	3.60	3.20	3.80	0.88	1.01	1.96	1.88
Q2	2.60	2.80	3.40	0.59	1.50	-0.95	-1.45
Q3	2.20	2.70	2.70	0.83	2.68	0.88	0.30
Q4	0.20	2.20	1.80	1.24	2.57	4.62	4.26
1982							
Q1	1.90	2.50	2.50	-0.41	2.15	-5.36	-5.84
Q2	2.20	3.20	2.40	0.68	1.22	-2.93	-3.79
Q3	1.40	2.90	2.90	1.01	2.22	-4.33	-5.35
Q4	1.20	3.60	2.90	0.67	2.95	-4.38	-4.22
1983							
Q1	1.90	4.10	3.60	1.06	2.27	-4.41	-4.76
Q2	2.90	3.90	3.90	0.70	2.34	-3.05	-2.80
Q3	0.70	2.20	1.80	1.09	2.40	-6.01	-5.72
Q4	1.20	2.30	2.50	-1.80	1.93	-5.11	-5.26
1984							
Q1	2.20	1.70	2.40	0.26	1.48	-11.07	-11.05
Q2	4.60	3.60	4.40	1.70	2.52	-7.54	-8.02
Q3	6.10	4.40	5.20	0.55	1.32	-6.65	-7.11
Q4	4.90	2.50	3.70	0.78	1.84	-9.30	-9.57
1985							
Q1	4.50	2.50	2.80	-0.16	1.83	-10.67	-10.83
Q2	3.60	2.10	3.50	1.13	2.18	-12.53	-12.58
Q3	3.80	3.30	3.80	0.45	2.52	-8.23	-8.51
Q4	2.80	3.20	3.40	0.70	2.64	-8.82	-9.05
1986							
Q1	2.20	2.60	2.90		2.07		

FIGURE 6.1 TORONTO AND QUEBEC PRICES, 1979-86

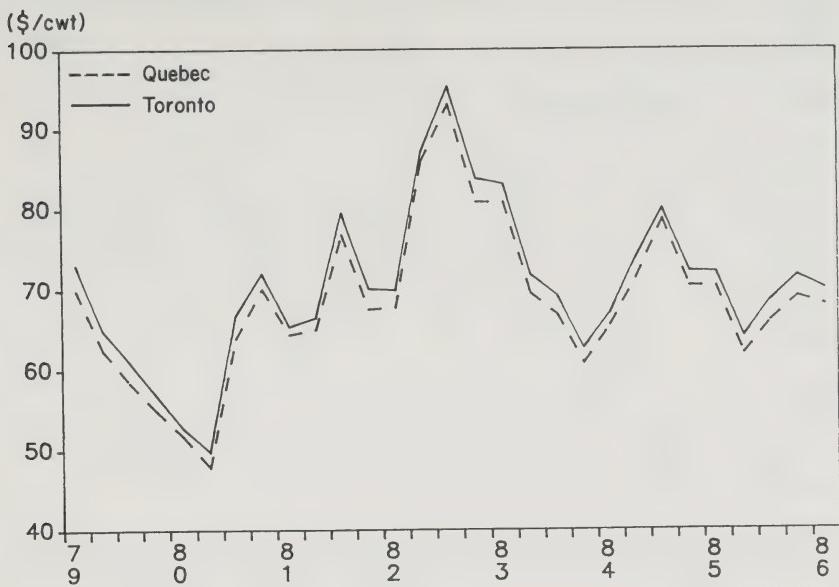


FIGURE 6.2 TORONTO AND EDMONTON PRICES, 1970-86

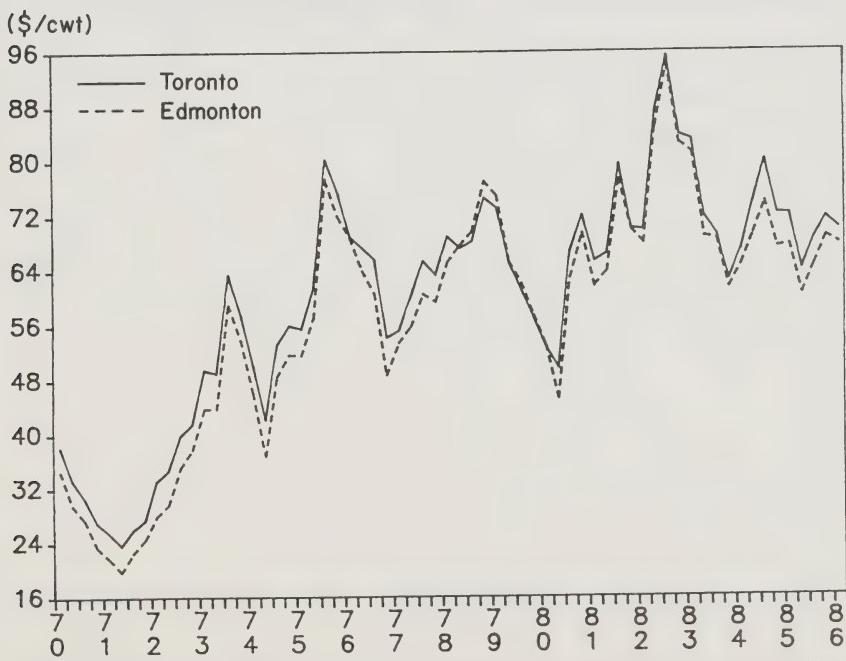


FIGURE 6.3 INDEX 100 HOG PRICES, TWO EASTERN MARKETS, 1970-86

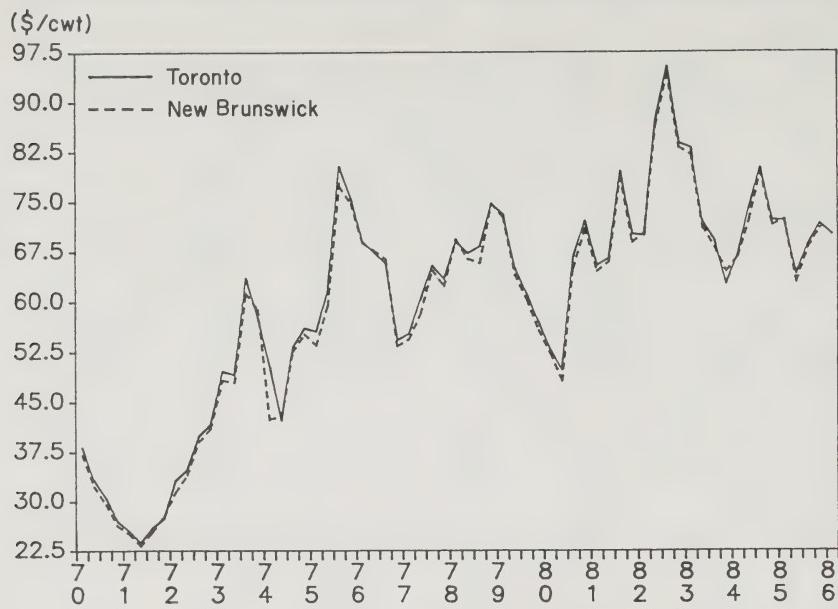


FIGURE 6.4 INDEX 100 HOG PRICES, THREE WESTERN CITIES, 1970-86

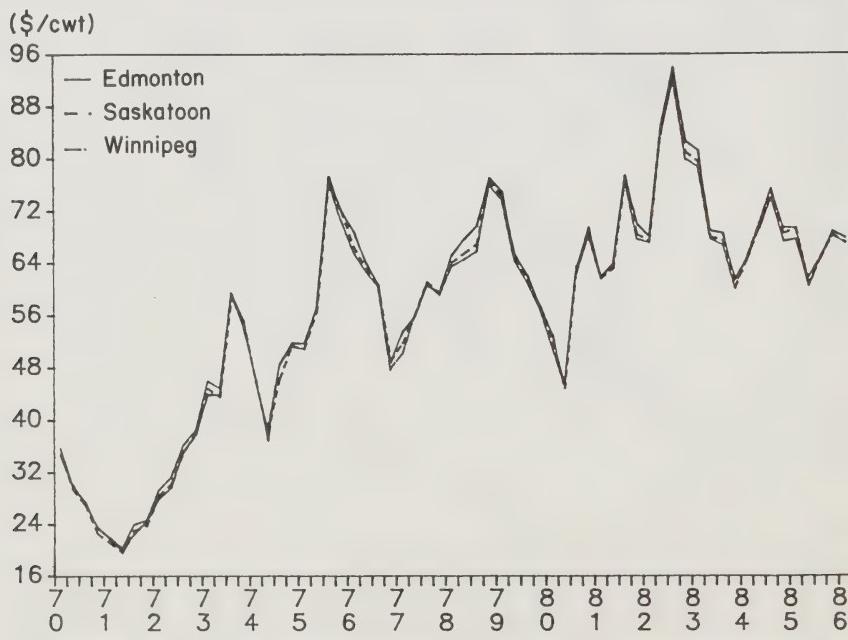


FIGURE 6.5 TORONTO - QUEBEC PRICE SPREAD FOR INDEX 100 HOGS,
1979-86

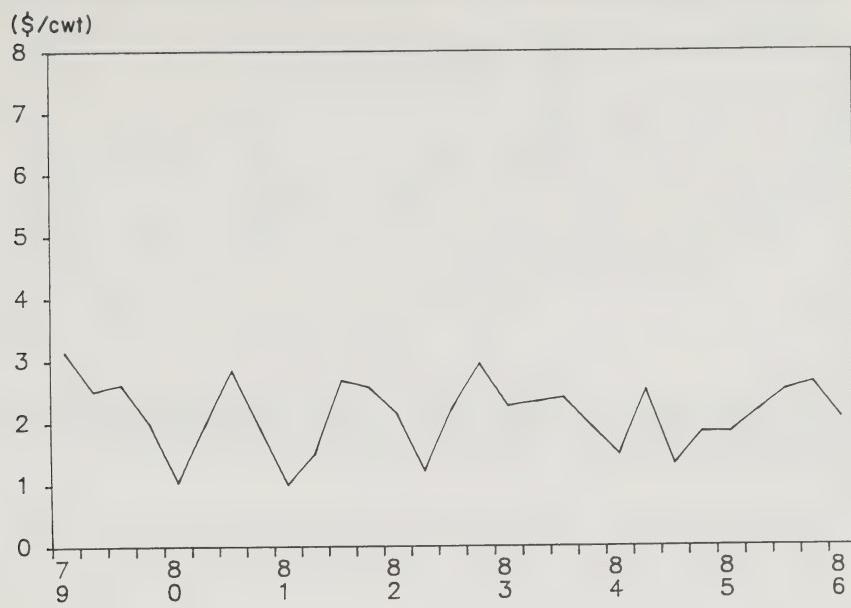


FIGURE 6.6 TORONTO - WINNIPEG PRICE SPREAD FOR INDEX 100 HOGS,
1970-86

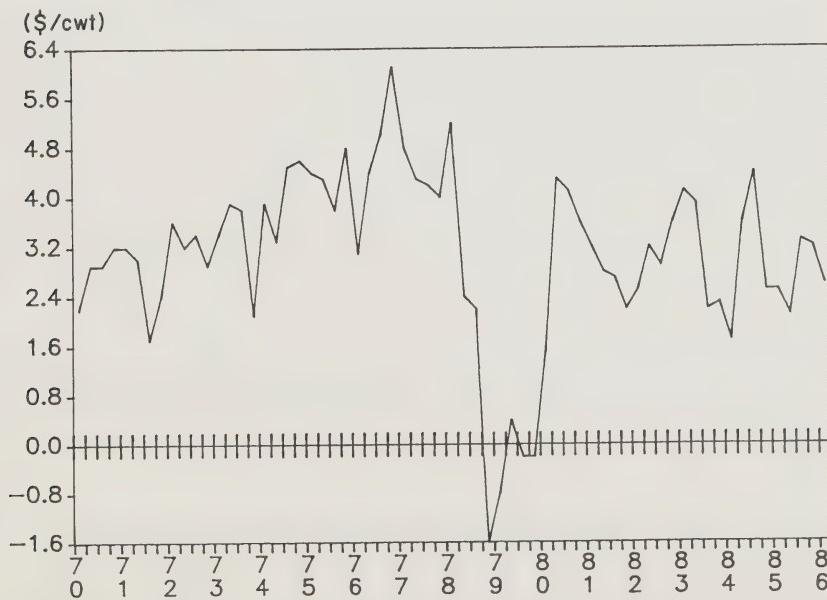


FIGURE 6.7 TORONTO - SASKATOON PRICE SPREAD FOR INDEX 100 HOGS, 1970-86

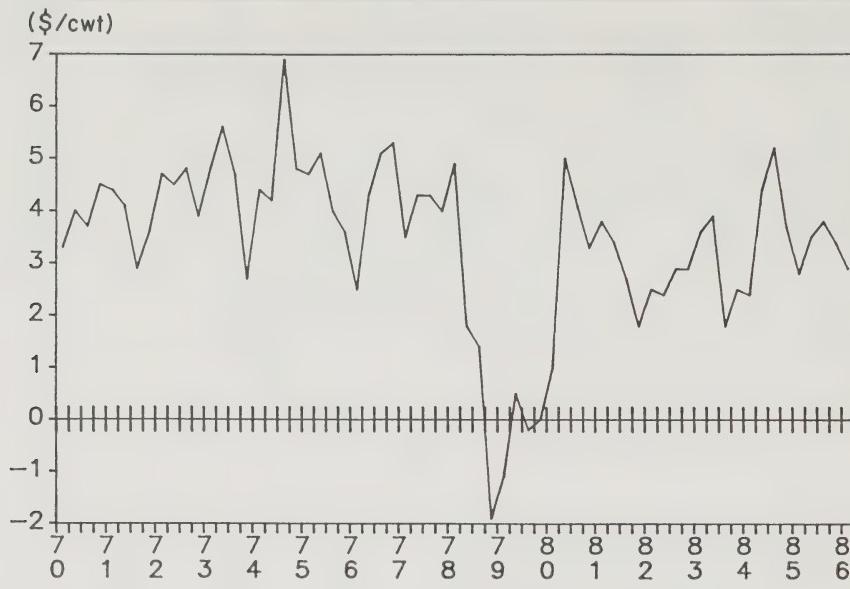


FIGURE 6.8 TORONTO - EDMONTON PRICE SPREAD FOR INDEX 100 HOGS, 1970-86

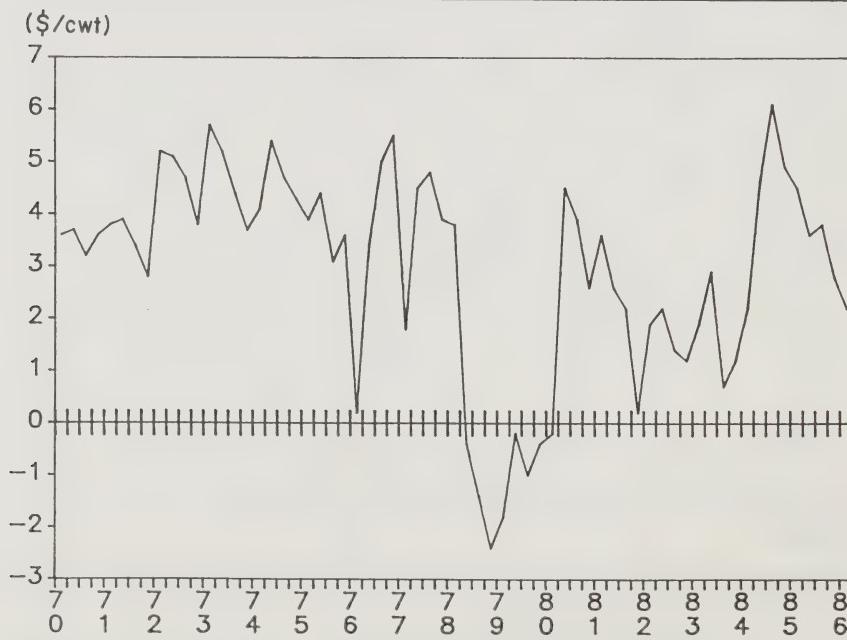
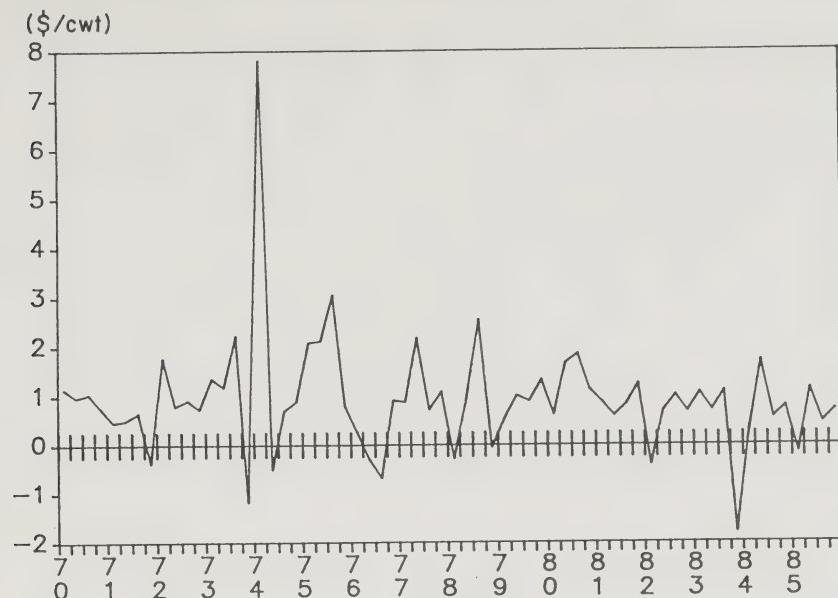


FIGURE 6.9 TORONTO - NEW BRUNSWICK PRICE SPREAD FOR INDEX 100 HOGS, 1970-85



Part II

Federal and Provincial Policies

CHAPTER 7: FEDERAL AGRICULTURAL PRICE AND INCOME SUPPORT POLICIES

The federal government's farm price and income stabilization policies may be categorized as follows:

- 1944 to 1958: Agricultural Prices Support Act
- 1958 to 1975: Agricultural Stabilization Act
- 1975 to 1985: amended Agricultural Stabilization Act
- 1985: introduction of the Tripartite Price Support Policy

The 1944-58 period may be described as one where agricultural price supports were set generally at levels that reflected market demand and supply forces. Price support levels were not set on the basis of any explicit formula.

The 1958 Agricultural Stabilization Act, by contrast, set an explicit formula based on an average of past prices.

The ASA amended in 1975 established price support levels using a formula incorporating past price averages and introducing an index for input costs. This latter component reflected the growing concern about the impact of inflation in farmers' costs of production. The amended ASA also made provision for the "top loading" of the federal price support program by provincial support programs.

The 1985 tripartite price support policy represented a major attempt to bring about greater coordination (integration) of the federal price support policy with the proliferation of provincial agricultural price and income support programs.

AGRICULTURAL PRICES SUPPORT ACT, 1944

The impetus behind the Agricultural Prices Support Act, which was passed by the federal government in 1944, may be found in an excerpt from a speech made by Prime Minister Mackenzie King in 1943:

If to help win the war, the farmers are asked to accept a ceiling on prices, we believe they are entitled to a floor under prices to ensure them against an agricultural

depression after the war. As an essential part of its postwar policy, the government intends to ask Parliament, at the next session, to place a floor under the prices of the main farm commodities. (cited in Schwartz, 1959, p. 147)

The preamble to the act itself set out the general principles underlying the Prime Minister's use of the phrase "floor price":

In prescribing prices...the Board shall endeavor to ensure adequate and stable returns for agriculture...and shall endeavor to secure a fair relationship between the returns from agriculture and those from other occupations. (cited in Schwartz, 1959, p. 147)

The general principles underlying the act were so general, however, that many interpretations of the objectives of the act were possible. Was it to provide price stabilization or price enhancement to farmers? Was it to be a form of "parity price" policy? Clearly, there was room for considerable flexibility in the interpretation and operations of the price support programs under the act.

The basic objectives and general intent of the act were revealed in the subsequent operations of the program.

One senior federal official who was closely associated with the operations of the Agricultural Prices Support Act made the following observations in the mid-1950s:

In practice the Board has tended to stress the word "adjustment" and has endeavored to adjust toward a position of supply-demand equilibrium which may seem economically feasible, either in the short or long run. The attempt has been to reach a point where the product under support can eventually be left to find its own price level in the marketplace,

even though a support price may be continued to protect against unusual seasonal price changes. In other words, most Board recommendations are made following serious consideration (with the producer group or groups concerned and often with the trade representatives as well), about a solution to the problem that will eventually lead to little or no government intervention in the pricing mechanism, unless a further problem develops....

Although there will be some element of welfare in any primary-industry price-support program, it has generally been considered, in Canada, economically sounder and much more efficient and equitable to deal with the welfare problems of agriculture more directly than through government intervention in the pricing system. (cited in Turner, 1956)

It can be inferred that the Agricultural Prices Support Act, as it was administered, was designed to provide protection against "unusual seasonal price changes" and not to increase prices (in the longer run) over those which would have prevailed in a situation of "demand supply equilibrium," that is, the longer-run competitive forces of the marketplace.

Canada's national farm organizations had conflicting reactions to the operations of the Agricultural Prices Support Act. The farm organizations did agree, however, that some type of formula should be used in setting price support levels under the act.

In 1955 the Canadian Federation of Agriculture contended that support prices should be established on the basis of a known formula. The CFA further advocated that price supports should vary from 65% to 85% of a parity price, depending on supply and demand conditions relating to the product in question. The CFA, in other words, appeared to want some form of minimum price stabilization based on a formula, but stabilization at a level which did not interfere unduly with the basic demand and supply forces of the competitive market.

The Farmers' Union, by contrast, advocated much greater intervention in the marketplace through price support policies:¹

At its annual convention in 1955, the Manitoba Farmers' Union supported a policy which would provide price supports at 100% of parity for all products. In the same year the Interprovincial Farm Union Council recommended parity prices for all agricultural products consumed domestically and a reasonable schedule of floor prices...for that portion of agricultural production...it was found necessary or desirable to export. (cited in Schwartz, 1959, p. 161)

Price supports for hogs under the Agricultural Prices Support Act were in effect each year following the termination of the U.K. pork contract in 1950. The first real test of the price support system for hogs came in 1952 when the U.S. placed an embargo on livestock imports from Canada because of the outbreak of foot-and-mouth disease.

Prior to the U.S. embargo in September 1952, the market price for hogs slumped below the announced support price for hogs. The Agricultural Prices Support Board attempted to maintain the announced price support by purchasing fresh frozen Wiltshire sides from authorized packers. By June 30, 1952, the government holdings of fresh frozen pork amounted to 15 million pounds. Another 37 million pounds were held by the government in the form of canned pork products. The canned pork products, which cost the government 46 cents per 12-ounce tin, were sold at a price of approximately 30 cents per tin (Schwartz, 1959, p. 156).

When 1952 was over (including the consequences of the September 1952 U.S. embargo on Canadian imports of livestock), the federal government (Garland and Hudson, 1968) had purchased

approximately 200 million pounds of pork in the form of cuts, Wiltshire sides and canned pork and started an active selling campaign for canned pork in the domestic market by reducing the price 40% below cost. (pp. 206-07)

The total cost of the program amounted to \$36.7 million.

Apart from the events during 1952-53, little support was provided to the hog producers for the remainder of the period ending in 1958 (see Table 7.1).

During the lifetime of the Agricultural Prices Support Act, the federal government had spent a total of approximately \$100 million, of which \$36.7 million had been spent for the support of the hog industry.

Several criticisms were made of the Agricultural Prices Support Act during its operations: it did not provide an explicit formula for the setting of price supports; the federal government had not formulated explicit objectives for its price support policies; the federal government made few, if any, provisions for a "forward pricing" policy (price supports were generally announced for a given year within the same year); and the federal government appeared very reluctant and was invariably late in intervening in the marketplace in the use of its "purchase" operations to support farm price.

In defense of the Agricultural Prices Support Act, it must be noted that the Canadian government did not become involved in the accumulation and disposal of costly surpluses (with the exception of the red meat surpluses accumulated during the foot-and-mouth disease epidemic in 1952) as had happened in the U.S. under its relatively high, rigid and formula-based price support policies.

AGRICULTURAL STABILIZATION ACT, 1958 AND 1975

The Agricultural Stabilization Act replaced the Agricultural Prices Support Act on March 3, 1958.

Price supports under the 1958 act were based on minimum prescribed price at 80% of a "designated" base price. The base price, in turn, was based on a 10-year moving average formula (i.e., a moving average of prices during the previous 10 years). The effect of using different base periods may be noted in Figure 7.1.

The prescribed support price under the 1958 ASA was to be achieved through one or other of the following measures: outright board purchases of a commodity at the prescribed price; a deficiency payment to producers to bridge the gap between their average return and the support price; and any other method of payment, including a fixed subsidy, approved by the government.

While the new act included a definite formula for establishing the level of price supports and, accordingly, a system for some form of forward pricing, the Canadian Federation of Agriculture was critical of the fact that the formula did not explicitly relate farm prices to production costs.

The federal government used all three measures for supporting farm prices.

During 1958-59, the board purchased 56 million pounds of frozen pork cuts, nearly all of which were held until 1959-60. In 1959-60, the board's purchases of pork amounted to 128 million pounds of frozen pork cuts, 114 million pounds of canned pork luncheon meat and 8 million pounds of canned hams. These supplies were disposed of over a period of years, largely through exports at concessionary prices at a total cost of \$74 million (Garland and Hudson, 1968, p. 226-27).

Because of the mounting surpluses of pork, the federal Minister of Agriculture announced in March 1959 that the board would provide price support for hogs by means of deficiency payments to producers, rather than using the "purchase-and-store" method to support hog prices. According to the Minister:

This method would make it possible to withhold payments from commercial organizations operating under the so-called vertical integration plan, and to limit payments to any individual to a specific number of hogs delivered. (cited in Schwartz, 1959, p. 180)

Payments, when made, were to be limited to registered producers on the basis of annual deliveries of up to 100 Grade A and Grade B hogs.

The level of price support for hogs for the period 1958-68 may be noted in Table 7.2. After 1960-61, prices of hogs were above the support level and no deficiency price payments were made.

Total payments for hog price supports for the 1958-75 period amounted to approximately \$93 million (Table 7.3). The main costs were incurred during 1959-60 and 1960-61.

During the latter part of the 1960s and early 1970s, a number of factors led to increasing criticism of existing agricultural price support policies by the agricultural producers: depressed farm prices and incomes; surpluses in several

commodities; gradual but significant annual increases in farm production costs; and sluggish export markets.

As a result of these factors, farmers pressed for major amendments in existing policies and, indeed, for entirely new policies.

From 1969 to 1972, primarily as a result of the chicken and egg war, producers turned to supply management and administered pricing as an alternative to the traditional price support policies. In the proposed legislation for the Farm Products Marketing Agencies Act, hogs were included along with the feathered products as products to be supported through some form of comprehensive national supply management scheme.

After a long and bitter battle, cattle and hogs were finally excluded from the Farms Products Marketing Agencies Act, which was passed in 1972 (Skogstad, 1980). The majority of the hog producers had decided they did not want to be part of the national supply management program.

But if the hog producers did not want to be part of the national supply management program, what policies did they want for their industry?

Because the existing federal Agricultural Stabilization Act, 1958, did not appear to be meeting their concerns, particularly their growing input costs (Table 7.4), hog producers turned to their respective provincial governments for supplementary assistance.

Several of the provinces did respond with their own price and income support programs. Provincial hog stabilization programs were established in Nova Scotia in 1973 and in New Brunswick in 1977. British Columbia established commodity stabilization programs under its Farm Income Assurance Act in 1973. Quebec passed its Farm Income Stabilization Assurance Act in 1975. Saskatchewan implemented its Saskatchewan Hog Assured Returns Program (SHARP) in July 1976.

It became apparent that some modification had to be made in the federal 1958 Agricultural Stabilization Act. The pressure came primarily on the side of farm input costs. Annual inflation rates had reached 9.1% in 1973, 15.3% in 1974 and 10.8% in 1975. The minimum level of support (based on a 10-year moving average of previous prices) provided under the ASA, 1958, no longer provided effective protection to agricultural producers against the ravages of double-digit inflation.

The Agricultural Stabilization Act was amended in 1975. The major amendments of the act included the following:

- The minimum support level for named commodities was changed to 90% of the five-year-average price adjusted for changes in cash costs in the current year, compared with costs in the five-year base period. The specific formula used in calculating the support level was 90% of the five years plus current cash costs minus average cash costs in the preceding five years.
- Provision was made for the federal government to enter into agreements with the provinces and/or producers to increase the support above the levels provided in the act. These agreements could be entered into only if three conditions were met: the cost of the additional support must be borne entirely by the provinces and/or producers; the agreement must not give a financial advantage to some producers that is not enjoyed by all producers; and the agreement must not provide an incentive to overproduction of the commodity (Eyvindson and Kerr, 1976).

Three factors led to an even more extensive involvement by the provinces in agricultural price support programs for the beef and hog industries: the provision for "top loading" included under the 1975 amendment to the Agricultural Stabilization Act; the escalation in the inflationary forces impacting on the input cost side of the farm business; and the desire by the provinces to use the red meat industry as one means of encouraging local economic development and job creation programs.

Because of the high level of inflation which followed the 1975 amendment to the ASA, cattle and hog producers soon discovered that the price supports calculated under the amended act did not keep pace with the rapid increase in their own costs of production. It was not surprising that producers soon petitioned for still further amendments to the act to provide for price supports that would more nearly reflect the rapid increases in their own production costs.

After prolonged discussions between the federal government and the provinces, the federal government introduced a major proposal in 1979 for further amendments to the Agricultural Stabilization Act (Eyvindson, 1959).

Two basic reasons led to the 1979 proposal for further changes in the ASA. The price support levels appeared to be too low relative to the rates of inflation impacting on the agricultural industry. Provincial stabilization programs were proliferating. The second reason appeared to give the federal government greatest concern (Eyvindson, 1959):

Some provinces have introduced their own stabilization programs since the last amendments to the ASA. Widely differing provincial programs for commodities that are produced and marketed across Canada could lead to serious problems. Producers in provinces with the highest support levels are given an advantage over producers in other provinces. Provinces could become involved in a competitive escalation of support levels as each province tries to protect the position of its own producers. The result could be a production shift to those provinces best able to afford high support levels. High support levels could cause problems with Canada's international trading partners as they reacted to what they might see as unfair subsidies on Canadian products. (p. 25)

The 1979 federal proposal was designed to remedy the problems cited. It called for the following changes to the ASA. The basis for the calculation of support prices would be changed to a guaranteed margin approach with 100% support. Producer participation would be voluntary, with two thirds of the program costs shared by the federal government and one third by the producers, with the federal government paying all administration costs. Beef cow-calf would be added to the list of commodities for which programs are mandatory. Quarterly programs would be established for hogs and slaughter cattle.

The "guaranteed margin approach" was one of the more important amendments included in the 1979 proposal for changes to the ASA. The guaranteed margin involved the following (Eyvindson, 1959):

The difference between the price a farmer receives for a commodity and his cash production costs represents his margin over cash costs and is the return to his labor, management and capital. Under the guaranteed margin approach, the support price would equal cash costs in the support year plus some percentage of the average margin over cash costs in the immediately preceding five years. The proposal is to include 100% of the five-year average margin in the support price. In other words support price equals cash costs in the support year plus average margin between market prices and cash costs in the preceding five years. (p. 26)

One of the major caveats associated with the 1979 federal proposal was that the provinces would not be permitted to "top load" the federal program. This restriction against "top loading" was rejected by British Columbia and Quebec (which had their own provincial programs) and by some producer groups.

Even while federal-provincial discussions were proceeding on the federal proposal for amendments to the ASA, several of the provinces proceeded to develop their own short-run ad hoc programs of price and income supports for their cattle and hog producers.

It was obvious that this continuing proliferation of provincial programs, coupled with the difficulties encountered in getting agreement for amendments to the federal legislation, made it extremely difficult to obtain any workable national consensus on a price and income policy for the red meat sector in Canada.

TABLE 7.1 AGRICULTURAL PRICES SUPPORT BOARD PAYMENTS FOR HOGS AND FOR ALL COMMODITIES, 1947-48 TO 1957-58

Payment year	Hogs	All commodities
		(\\$)
1947-48	-	195 352
1948-49	-	4 785 613
1949-50	-	3 237 726
1950-51	-	1 801 560
1951-52	2 513	280 886
1952-53	7 886 981	32 371 418
1953-54	27 845 931	37 842 556
1954-55	933 722	3 362 511
1955-56	4 747	5 822 214
1956-57	-	4 964 366
1957-58	-	6 053 202
Total	36 673 894	100 717 406

Source: Garland and Hudson (1968, p. 204).

TABLE 7.2 BASE AND SUPPORT PRICES FOR HOGS UNDER ASA, 1958-68

	Base price	Support price	Share of Base price
	(\$/cwt)		(%)
1958	29.75	25.00	84
1959	29.56	23.65	80
1960	29.56	23.65	80
1961	27.11	22.65	83.5
1962	26.64	23.65	88.8
1963	26.94	23.65	87.8
1964	26.77	23.65	88.3
1965	26.44	23.65	89.4
1966	27.23	21.78	80
1967	28.29	22.63	80
1968	28.33	22.66	80

Source: Garland and Hudson (1968, p. 216).

TABLE 7.3 NET EXPENDITURES IN PRICE SUPPORTS FOR HOGS AND ALL COMMODITIES UNDER ASA, 1958-59 TO 1974-75

Payment year	Hogs	All commodities
	(\\$)	
1958-59	135 411	15 197 324
1959-60	27 861 833	60 442 967
1960-61	29 243 738	51 184 188
1961-62	2 020 419	22 580 371
1962-63	7 529 182	72 317 417
1963-64	6 767 688	25 151 670
1964-65	80 210	56 259 558
1965-66	400 520	38 467 243
1966-67	50 799	89 046 456
1967-68	54 543	141 645 355
1968-69	-	145 717 247
1969-70	-	136 632 468
1970-71	(-74 295)	126 749 778
1971-72	10 759 385	122 408 573
1972-73	7 813 531	119 113 977
1973-74	34 057	144 031 561
1974-75	2 495	298 161 173
Total	92 679 516	1 763 632 197

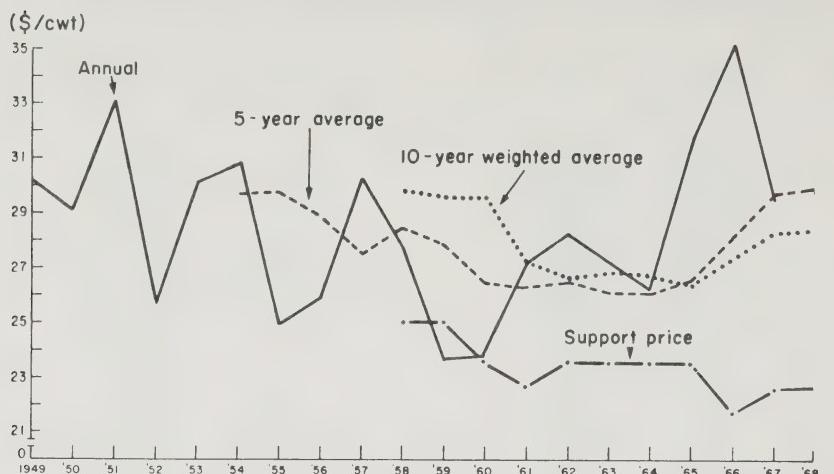
Source: Annual reports of the Agricultural Stabilization Board, 1958-59 to 1974-75.

TABLE 7.4 INFLATION INDEXES, CANADA, 1961-84

	Consumer price indexes		Gross national expenditure implicit price index	Farm input price index
	All items	Food		
	(annual % change)			
				(1981 = 100)
1961	1.0	1.5	0.5	
1962	1.2	1.9	1.3	
1963	1.7	3.2	1.9	
1964	1.8	1.6	2.5	
1965	2.5	2.6	3.2	
1966	3.7	6.4	4.5	
1967	3.6	1.3	3.9	
1968	4.0	3.3	3.3	
1969	4.5	4.3	4.4	
1970	3.4	2.3	4.7	
1971	2.8	1.1	3.1	
1972	4.8	7.6	5.0	
1973	7.6	14.6	9.1	
1974	10.9	16.3	15.3	50.2
1975	10.8	12.9	10.8	55.2
1976	7.5	2.7	9.6	58.8
1977	8.0	8.3	7.4	61.2
1978	8.9	15.5	6.7	68.4
1979	9.2	13.2	10.3	79.9
1980	10.2	10.7	11.4	87.6
1981	12.5	11.4	10.6	100.0
1982	10.8	7.2	10.4	103.2
1983	5.8	3.7	5.4	104.3
1984	4.3	5.5	3.0	N.A.

Source: Statistics Canada.

FIGURE 7.1 PRICES FOR GRADE A HOG CARCASSES, CANADA, 1949-68



Source: Garland and Hudson (1968, p. 367).

CHAPTER 8: PROVINCIAL POLICIES AND PROGRAMS

As we have already noted in the discussion of the federal price and income stabilization policies, seven of the 10 provinces established their own price and income policies for the hog industry. Two other provinces, Alberta and Ontario, established temporary programs. While Newfoundland did not establish any form of direct price stabilization program, it did provide a form of loan to hog producers whenever and to the extent that the market price dropped below a specified support price level.

Several factors and events appear to have led to these provincial policies for the hog industry: limitations of the federal legislation; indecision by the federal government during the latter part of the 1970s regarding future directions for national price support policies; and a desire by some of the provinces to achieve self-sufficiency in hog production and, in the process, to use the expansion of the hog industry and associated slaughtering and processing facilities as the basis for income and job creation activities.

The proliferation of provincial price and income stabilization programs for the hog industry has complicated the national policy process and has created many significant implications for agricultural trade policy (Gilson, 1985).

This chapter is devoted to an examination of the various provincial hog policies and programs that have emerged over the past 15 years.¹

BRITISH COLUMBIA

The hog stabilization plan in British Columbia operates under the provisions of the province's Farm Income Assurance Act, which was passed in 1973. The purpose of the B.C. Farm Income Insurance Program has been stated as follows:

The purpose of the program is to provide financial assistance to participants when average farm prices fell below a benchmark cost of production figure, and to assist with the maintenance of a viable agricultural industry in British Columbia.

The main features of B.C. hog stabilization are as follows. Participation in the program is voluntary. Program costs (premium rates) are

shared equally between the participating producers and the province. The support price is set equal to 100% of the total costs of production, as derived from a model used for that purpose. The support payment is equal to 100% of the difference between the specified support price and the market price for hogs.

The support payment cannot exceed 57% of the total costs of production per unit. Support payments for hogs are calculated annually but are disbursed on a quarterly basis.

The support payments made under the B.C. Swine Income Insurance Program varied greatly between 1973 and 1982 (Table 8.1). The highest payment was the \$14.99/cwt paid out in 1980 when the market price for hogs slumped to \$60.76/cwt.

A more detailed display of the premiums paid by producers and the net indemnities received is shown in Table 8.2.

ALBERTA

The province of Alberta has confined its support of the hog industry to short-run price support programs pending the outcome of an adequate national hog price stabilization program.

For the period April 1, 1980, to March 31, 1981, the province of Alberta established the Temporary Stop-Loss Stabilization Program for hogs. The cost of this program amounted to \$21 million.

The main features of the Stop-Loss Program were as follows. Alberta hog producers were guaranteed a return of \$35 per hog over feed costs (feed costs calculated on a monthly basis). Support payments were equal to the difference between the calculated feed costs plus \$35 minus the average weekly market price (payments made on a monthly basis). Only hogs of Alberta origin were eligible for support.

The one-year Stop-Loss program was followed by the Pork Producers Market Insurance Plan, which operated from July 1, 1981, to March 31, 1985. Participation in this program was voluntary. The Alberta government provided an initial grant of \$10 million in support of the program and guaranteed a line of credit up to \$10 million to maintain the integrity of the program. That line of credit was written off by the province in December 1984.

The Pork Producers Market Insurance Plan included the following features. Participating producers paid a premium varying between 1% and 4% of the gross value of hogs marketed. The support price was based on a formula including both feed and nonfeed costs. Stabilization payments were based on a formula which reflected the difference between the calculated support price and the average market price for a specified period of time.

The government contributions to both the Stop-Loss and the Producers Market Insurance Plan are shown in Table 8.3. While the Alberta government has not developed comprehensive price support legislation, primarily because it has preferred to see some uniform and integrated national legislation in operation, it has been prepared to implement ad hoc programs from time to time to countervail against the effects of other provincial programs.

SASKATCHEWAN

The Saskatchewan Hog Assured Returns Program (SHARP) was established in July 1976. This program had the following features. Participation in the program was voluntary. The quarterly support price was based on cash costs plus 75% of the noncash costs (interest on capital, depreciation and return to labor). A support payment was made whenever and to the extent that the average market price fell below the quarterly support price. Program costs were shared between producers and the government of Saskatchewan on a 50:50 basis, and the producer levy on the value of hogs marketed ranged from 1-1/2% to 4-1/2%, depending on the fund balance. Participants in the SHARP were eligible for support payments on a maximum of 1500 hogs per producer per quarter and 4500 hogs per corporation or partnership per quarter.

Data in Table 8.4 indicate the levies and support price payments made to hog producers under the SHARP between 1976 and 1984.

MANITOBA

The Manitoba Hog Income Insurance Plan operated from January 1, 1981, to December 31, 1982. Support price levels under this plan were established on a quarterly basis at 93% of the cost of hog production. Each participating producer was required to pay a premium ranging from 1-1/2% to 4-1/2%, depending on the

balance in the fund. The government of Manitoba provided a grant of \$5 million to help finance the operations under the plan.

With the end of the Hog Income Insurance Plan on December 31, 1982, a new but very similar plan was established, namely the Manitoba Hog Income Stabilization Plan. The main features of this new plan were as follows. The support price is based on 87% of the cost of producing a hog, support prices established on a quarterly basis. The maximum premium cost was set originally at 6% of the market value of the hogs; the producer levy was 4% and the provincial government paid the remaining 2% levy. Later, the total levy was raised to 7%, with the producers paying 5% and the government the remaining 2%. The plan was a voluntary program. The levies and payouts under it are shown in Table 8.5.

ONTARIO

The Ontario Weaner Pig Stabilization Program was in operation from April 1, 1980, to March 31, 1985. This was a voluntary plan and was adopted to provide income stabilization to Ontario's sow-weaner producers during times of fluctuating prices and costs.

Under the plan, support prices were calculated and announced every six months. The price support was set at 95% of the previous five-year average price for the period in question, adjusted by cash cost changes. A price support payment per sow was made on the basis of the difference between the specified price support and the market returns for slaughter hogs.

In effect, support price payments were calculated on a slaughter hog basis and converted to a per sow basis.

The plan was funded on a cost-shared basis, where the province of Ontario provided two thirds of the funding and one third was provided by the participating sow-weaner producers.

Payments made under the plan and other details are shown in Tables 8.6 and 8.7.

QUEBEC

The Income Stabilization Insurance Scheme for feeder hog producers and the Income Stabilization Insurance Scheme for piglet producers operate under the general Provincial Farm Income Stabilization Insurance Program, which was established in June 1975.

The general provisions of the Quebec Farm Income Insurance Program are as follows. There are voluntary plans for a number of commodities including hogs. The plans are based on an insurance concept with each plan having its own fund. Premiums are established by semiannual calculations, and the plans are funded on a cost-shared basis, one third of the required contributions from the participating producers and two thirds from the province of Quebec. Payments are made to the participating producers under the plan when cash market income is less than the cost of production plus the value of the producer's labor; in the case of the hog plan, the value of the producer's labor is set at 70% of an equivalent skilled worker's wage. The minimum guaranteed return is set equal to cost of production plus the value of the producer's labor. The eligibility limits are 17 piglets per sow per year, within a 15-sow minimum and a 400-sow maximum, and up to 5000 hogs per farmer.

Levies and payments under the hog plans are shown in Table 8.8.

NEW BRUNSWICK

The New Brunswick Hog Stabilization Program of 1974 is jointly administered by the New Brunswick Department of Agriculture and the provincial Hog Producers' Marketing Board. The purpose of the program is essentially to give hog producers greater income security. This is done through a guarantee that efficient producers will receive financial support during periods of low hog prices. The program is also intended to ensure greater stability of hog production by enabling hog producers to remain in business when prices are low. This in turn will provide both a more uniform volume of pork production for the processing industry in New Brunswick and a safeguard for the lending institutions that provide capital loans to the hog industry.

The program is available to all hog producers who market hogs through the New Brunswick Hog Marketing Board and who wish to participate. Under the program, a base price is determined four times per year (quarterly) and equals the price per hundredweight, basis Index 100 hogs marketed through the board. This price is adjusted to reflect the following costs: feed weighted at 70%; weaning at 20%; labor at 4%; building costs at 3%; and interest at 3%.

Payments to producers are made from a Stabilization Fund, consisting of equal payments from producers and the provincial Department of Agriculture, when the average weekly price is below the base price. Payments equal the difference between the average weekly price and the base price.

When the weekly price exceeds the base price by \$5, producers are required to make contributions to the Stabilization Fund. Each producer's contributions to the fund are deposited by the board into separate accounts.

In the event that the Stabilization Fund becomes insufficient to meet deficiency payments, the provincial government will be asked by the board to make interest-free loans to meet deficiency payments. Repayment of any interest-free loans commences when the balance of the Stabilization Fund reaches a surplus of \$25,000.

The New Brunswick Hog Stabilization Program is operated by the province independently of the federal stabilization program. When the federal program announces a payment for hogs and chooses to impose the program's "netting out" clause, New Brunswick hog producers receive no federal payment if the amount the provincial program pays producers exceeds the federal payment per hog.

Table 8.9 shows the amount of payouts made under the New Brunswick program and the amount of producer and government contributions to the program.

NOVA SCOTIA

Price stability is the major purpose of the Nova Scotia Pork Price Stabilization Program. To assure greater price stability and a more satisfactory level of returns on investment, management and labor in the long run, the program is designed so that when prices are high, hog producers pay into a stabilization fund and, when low, producers draw from this fund. By bringing greater stability to the hog production industry, the program seeks to encourage financial lending institutions to provide long-term, intermediate and short-term capital to Nova Scotia's hog industry and also to attract young people into the industry.

The program is run on a voluntary basis and is available to all Nova Scotia hog producers who market hogs through the Pork Producers' Marketing Board of Nova Scotia.

A stabilization price is determined quarterly by the provincial Pork Stabilization Board and is the price on which payments may be calculated and paid to producers. The stabilization price equals the price per hundredweight, basis Index 100 hogs marketed through the Pork Producers' Marketing Board. The level of the stabilization price is adjusted to reflect all current, direct, out-of-pocket operating costs, including feed (73%), hired labor (8%), interest (6%), repairs (3%), utilities (3%) and other (7%). When the weekly market base price for Index 100 hogs falls below the stabilization price, all participating producers are entitled to receive payments from the stabilization fund. Payments to producers from the fund equal the difference between the weekly market base price and the stabilization price.

The minimum producers' contribution price is the price at which participating producers make contributions to the Stabilization Fund, and equals a level of \$5/cwt above the stabilization price. When the minimum producers' contribution price level is reached, the Nova Scotia Pork Stabilization Board deducts from each participating producer the required contribution and deposits the same amount into individual producer accounts within the Stabilization Fund.

The government of Nova Scotia makes payments to the Stabilization Fund equaling one half of the amount paid out to producers from the fund. Interest-free loans are made available to the fund when individual producers' equity has been exhausted, so that payments to producers may continue. Such loans are repayable to the government when the producers' accounts are in a positive position.

The portion of the Stabilization Program payments obtained from the provincial government are subtracted from any payments to Nova Scotia hog producers from the federal ASA program.

Table 8.10 summarizes the Nova Scotia Price Stabilization Program from 1975 until 1983, including total payouts per year and provincial government and producer contributions to the total payout.

PRINCE EDWARD ISLAND

The Prince Edward Island Hog Stabilization Program of 1973 is, in many respects, similar to New Brunswick's hog program. The objective of the P.E.I. program is to stabilize returns caused

by hog price cycles and to provide producers with a measure of income stability by guaranteeing 95% of direct operating costs. The program, through assuring more satisfactory returns, is also designed to encourage lending institutions to provide capital to the industry and to attract young people into the industry.

The program is administered by the Prince Edward Island Hog Commodity Marketing Board on behalf of the Prince Edward Island Department of Agriculture. Participation is voluntary, and there is no minimum number of hogs covered; however, a maximum is set at 3400 hogs marketed per year or 850 per quarter.

Support levels under the program are established quarterly and are based on a formula which accepts weightings of selected representative input cost items. These items are feed, weaner pigs, interest, labor and building repairs. Essentially, the support price is established to cover 95% of out-of-pocket costs with no return to management and without consideration of depreciation.

The program is funded equally by producers and the provincial government. However, it is designed so that producer contributions correspond with the average weekly base price. Thus, when prices are high, producers contribute more to the Stabilization Fund. Deficiency payments to participating producers are made from the fund when the weekly base price on Index 100 hogs falls below the stabilization base price. The deficiency payment to eligible producers equals one half the difference between the weekly base price for Index 100 hogs and the stabilization base price. In the event of a federal hog support payment under the ASA hog program, producers receive only the difference between the federal payout and the provincial payout, if the provincial payout is the lower of the two. In the event the fund is insufficient to cover the deficiency payments, the provincial government provides a loan to cover the shortfall. Repayment of the loan is ensured by the board. A summary of support levels and deficiency payouts from 1975 to 1983 is presented in Table 8.11.

FISCAL POSITION OF PROVINCIAL PROGRAMS AT THE END OF 1985

An estimate was made of the fiscal position of the various provincial stabilization programs at the end of 1985. In the case of Alberta, its program was terminated on September 30, 1984,

and a loan in the amount of \$9.5 million, which had been extended from the provincial government to the plan to cover operating deficits, was forgiven by the government.

In the case of Ontario, the program, which was administered in a manner that did not involve an active account that could be in surplus or deficit, was terminated on March 31, 1985.

The Manitoba program was terminated effective June 30, 1986, in conjunction with the province's decision to participate in the national tripartite program.

In Saskatchewan, the SHARP program has been placed on a five-year phase-out period as part of the arrangement in joining the national tripartite program.

The estimated 1985 year-end deficits for the various provincial stabilization programs are shown in Table 8.12.

TABLE 8.1 IMPACT OF THE B.C. FARM INCOME INSURANCE PROGRAM ON HOG RETURNS, 1974-82

	Market returns	Returns under the farm income insurance program	Gross indemnity
(\$/cwt)			
1974	50.31	58.64	8.33
1975	67.20	67.63	0.43
1976	61.63	63.57	1.94
1977	59.03	61.85	2.82
1978	71.20	70.36	(0.84)
1979	67.60	68.86	1.26
1980	60.76	75.75	14.99
1981	70.22	83.20	12.98
1982	82.94	81.57	(1.37)

TABLE 8.2 SWINE FARM INCOME INSURANCE PLAN, BRITISH COLUMBIA, 1979-84

	Production value	Producers' premium	Gross indemnity	Market return	Cost of production	Net indemnity
	(\$000/cwt)				(\$/cwt)	
1979						
Q1	22.0	2.00	nil	78.06	64.96	(2.00)
Q2	26.2	2.00	nil	67.67	66.65	(2.00)
Q3	29.0	2.00	3.16	65.01	68.17	1.16
Q4	43.2	2.00	9.89	59.65	69.54	7.89
1980						
Q1	53.8	1.50	17.93	55.91	73.84	16.43
Q2	65.9	1.50	27.30	48.09	75.39	25.80
Q3	69.8	2.50	10.81	67.18	77.99	8.31
Q4	76.9	2.50	11.92	71.86	83.78	9.42
1981						
Q1	106.3	4.75	24.57	63.45	88.02	19.82
Q2	99.8	4.75	23.27	65.68	88.95	18.52
Q3	82.4	4.75	8.97	79.85	88.82	4.22
Q4	83.2	4.75	14.12	71.89	86.01	9.37
1982						
Q1	118.2	10.00	13.74	67.92	81.66	3.74
Q2	113.2	2.00	nil	85.93	80.94	(2.00)
Q3	86.8	6.00	nil	94.97	81.44	(6.00)
Q4	73.0	3.50	nil	82.97	78.21	(3.50)
1983						
Q1	92.4	4.00	nil	81.96	78.89	4.00
Q2	90.3	4.00	8.27	71.33	79.60	4.27
Q3	90.1	4.16	8.33	72.10	80.43	4.16
Q4	87.5	9.06	18.12	64.36	82.48	9.06
1984						
Q1	101.8	7.80	17.00	67.42	84.42	9.20

TABLE 8.3 TYPE AND LEVEL OF SHORT-TERM GOVERNMENT SUPPORT OF HOG PRICES, ALBERTA, 1980-81 TO 1983-84

Fund year	Aggregate payment to hog producers ^a	Government support	Total hogs shipped	Payment per hog shipped
	(\$)		(Number)	(\$)
1980-81	16 274 990	16 274 990	1 783 727	9.12
1981-82	16 699 308 ^b	7 832 490 ^b	1 665 343	4.70
1982-83	512 874	122 008	1 568 137	0.08
1983-84	17 591 610	4 184 870	1 668 920	2.51
Total	51 078 782	28 414 358	8 210 743	3.46

^a Total government payments of \$21 399 736 paid from April 1, 1980, to June 30, 1981, under the Stop-Loss Program and prorated portion of the government's \$10 million grant expended to March 31, 1984; i.e., \$7 074 625 under the Pork Producers' Market Insurance Plan (unaudited amounts)

^b Of which \$5 064 746 is the Stop-Loss Program to June 1981, from aggregate and government amounts

TABLE 8.4 MARKETINGS, LEVIES AND SUPPORT PAYMENTS UNDER THE SASKATCHEWAN HOG ASSURED RETURNS PROGRAM (SHARP), 1976-84

	Hogs				Carcass				Payout		
	Total marketings	Levy	Participation rate	Payout	Support price	Market price	Payout	Total quarterly payout	Producer levy	Producers in sharp	Payout to date
	(head)	(\$)	(%)	(\$)		(\$/cwt)		(\$)	(\$)	(number)	(\$000)
1976											
Q3	115 763	24 071	21	662	47.62	60.02	12.40	955.20	34 104.92	632	10
Q4	124 013	25 957	21	34	46.72	48.30	1.58	28.76	29.50	639	10
1977											
Q1	134 546	30 901	23	—	47.44	51.83	—	—	2 675.26	656	
Q2	135 612	29 785	22	—	48.35	56.03	—	—	16 150.66	664	
Q3	124 060	29 436	24	—	47.91	52.51	—	—	40 562.86	693	
Q4	116 079	26 336	23	—	46.73	59.38	—	—	34 256.73	695	
1978											
Q1	137 689	32 245	23	—	47.30	64.06	—	—	65 155.14	707	
Q2	138 591	31 953	23	—	47.65	65.57	—	—	54 508.51	712	
Q3	128 824	28 355	22	—	50.82	67.07	—	—	53 051.18	713	
Q4	128 753	27 770	21	—	51.53	76.41	—	—	90 446.82	722	
1979											
Q1	157 831	35 550	21	—	52.77	74.18	—	—	88 773.60	734	
Q2	159 717	32 789	20	—	54.22	69.57	—	—	28 249.76	738	
Q3	147 201	31 388	21	—	57.09	61.32	—	—	52.52	752	
Q4	168 020	37 657	22	21 874	59.82	56.76	8.50	144 512.89	—	767	145
1980											
Q1	205 358	46 886	23	33 153	62.79	51.61	16.64	636 756	—	861	782
Q2	207 778	66 180	32	33 544	67.32	44.96	25.72	1 485 216	—	990	2 267
Q3	181 459	62 911	35	41 430	71.36	62.90	11.97	584 933	—	1 046	2 852
Q4	178 806	72 205	40	46 156	75.67	68.40	7.53	573 895	—	1 125	3 605
								(178 806)			
1981											
Q1	178 710	72 581	41	55 681	78.71	61.39	17.90	1 664 916	218 700	1 106	5 270
Q2	177 079	101 273	57	62 757	79.45	63.96	16.96	1 671 915	317 262	1 747	6 945
Q3	152 734	91 766	60	66 084	81.35	76.78	4.57	514 278	341 500	1 878	7 459
Q4	144 188	92 041	64	72 780	79.99	67.41	12.58	1 620 000	309 600	1 926	9 318
								(239 100)			
1982											
Q1	159 606	105 899	66	83 116	78.49	68.17	10.32	1 520 000	358 629	2 051	10 84
Q2	150 420	106 524	71	1 479	79.45	85.10	—	6 868	479 169	2 149	10 85
Q3	150 673	93 903	71	—	79.31	92.49	—	—	684 484	2 175	10 85
Q4	161 419	91 249	71	1 024	77.02	80.12	—	1 455	581 834	2 193	10 93
								(76 055)			
1983											
Q1	145 846	104 124	71.4	624	74.43	79.59	-	1 560	588 312	2 000	10 932
Q2	150 157	110 585	73.6	94 776	73.85	67.89	5.96	997 093	467 136	2 063	11 929
Q3	150 673	112 749	74.8	112 749	71.75	67.53	4.22	848 521	467 369	2 128	12 778
Q4	161 419	121 521	75.3	121 521	74.07	59.93	14.14	2 887 684	453 677	2 217	15 666
1984											
Q1	184 575	144 177	74.0	144 177	76.01	64.58	11.93	2 925 194	593 844	2 370	18 59

TABLE 8.5

MANITOBA HOG PLANS, 1981-82 AND 1983-86

		Payout							
Producers covered	Producers in province	Guaranteed support price	Stabilization payout	Total output	Total payout	(\$)	(%)	(\$)	(%)
Manitoba Hog Income Stabilization Plan (January 1981 to December 31, 1982):									
Jan-Jun/81	400		2.75 per weanling	110 089 (direct grant)	307 159				
Jan-Mar/81	1 561	3 759		8.01 223 797	3 030 781	5 000 000		705 706	3
Apr-Jun/81				10.24 221 524	3 799 746			708 328	3
Jul-Sep/81				0				783 988	3
Oct-Dec/81				3.48 71.28	212 874	0 1 247 859		302 948	3
Adjustment for late filings in 1981:									
Jan-Mar/82		3 208	70.36	3.00	1 18 061				
						1 206 059		1 045 333	(3%-Jan (4-1/2%-Feb and March)
Apr-Jun/82		N/A	0	-		0		1 392 167	(4-1/2)
Jul-Sep/82		69.67	0	-		0		486 158	(1-1/2)
Oct-Dec/82 ^a	1 561	66.19	0	-		0		495 357	(1-1/2)
Manitoba Hog Income Insurance Plan (January 1983 to 1986):									
May-Jun/83	945		70.49	2.80	107 211	500 314		245 696	
Jul-Sep/83	945	3 271	74.95	7.93	157 323	2 074 984		353 056	2
Oct-Dec/83	957		77.41	16.97	171 853	4 942 967		355 469	2
Jan-Mar/84	997		75.36	10.13	183 885	3 233 169		416 066	2
								841 970	4

^a \$1 780 999 was reimbursed to the 1 561 hog producers when the Plan terminated

TABLE 8.6 PAYMENTS UNDER THE SOW-WEANER PLAN, ONTARIO, 1980-84

	Payments (\$)
Period 1 (April 1 to September 30, 1980)	
Gross payments	10 056 986
Producer premiums paid back	3 352 329
Net provincial	6 704 657
Period 2 (October 1, 1980 to March 31, 1981)	
Gross payments	9 784 249
Producer premiums paid back	3 261 416
Net provincial	6 522 833
Period 3 (April 1 to September 30, 1981)	none
Period 4 (October 1, 1981 to March 31, 1982)	
Gross payments	7 593 443
Producer premiums paid back	2 531 148
Net provincial payments	5 062 295
Period 5 (April 1 to September 30, 1982)	none
Period 6 (October 1, 1982 to March 31, 1983)	none
Period 7 (April 1 to September 30, 1983)	none
Period 8 (October 1, 1983 to March 31, 1984)	
Gross payments	5 490 666
Producer premiums paid back	1 830 222
Net provincial payments	3 660 444
Period 9 (April 1 to September 30, 1984)	none

TABLE 8.7 STABILIZATION PROGRAM FOR HOGS, ONTARIO, 1975-83

Producers covered	Producers in province	Guaranteed support price	Stabilization payout per unit sow	Total output	Payout			
					Total	Provincial contribution	Producers' contribution	
			(\$)	(\$)		(\$000)		
1975								
1976	—	11 181 ^a						
1977	—							
1978	—							
1979	—							
1980	4 424	68.83	51.94	—	10 056	6 700	3 352	
1981	4 273	12 180 ^a	70.93	51.94	—	9 784	6 522	3 261
1982	3 675		68.20	44.72	—	7 616	5 077	2 538
1983	3 040		?	—	—	—	—	3 101

^a Number of farmers reporting sows in the 1976 and 1981 Census of Agriculture

TABLE 8.8 FARM INCOME STABILIZATION INSURANCE SCHEMES FOR WEANER AND SLAUGHTER HOGS, PAYMENTS BY THE INSURANCE FUND AND PREMIUMS, QUEBEC, 1979-80 TO 1983-84

	1979-80	1980-81	1981-82	1982-83	1983-84	
Payment by the insurance fund:						
Weaners						
(\$000)	7 774	7 422	2 446	0	29 300	Total
\$/piglet	6.59	2.66	0.83	0	8.36	
\$/sow	112.05	45.22	14.11	0	142.12	
Slaughter hogs						
(\$000)	-	-	11 188	0	51 000	Total
\$/hog	-	-	7.54	0	24.13	
Premium paid by Quebec to the fund:						
Weaners						
(\$000)	1 405	4 104	4 853	4 601	5 760	Total
\$/sow	18.96	25.00	28.00	28.00	28.00	
Slaughter hogs						
(\$000)	-	-	2 968	5 340	6 340	Total
\$/hog	-	-	2.00	3.00	3.00	

Source: Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec, Direction des études économiques, Service des analyses sectorielles, December 1984.

TABLE 8.9 STABILIZATION PROGRAM FOR HOGS, NEW BRUNSWICK, 1975-83

Producers covered	Producers in province	Guaranteed support price	Stabilization payout ^a	Total output hogs	Payout		
					Total	Provincial contribution	Producers' contribution
					(\\$)	(\$/cwt)	(\\$000)
1975	198	686	55.75	0.66	52 909	58	29
1976	204	516	58.50	1.02	44 090	74	37
1977	207	523	56.75	0.15	47 341	12	6
1978	217	556	57.50	0.00	49 569	0	0
1979	256	648	62.50	3.45	59 423	338	169
1980	317	677	67.00	7.73	88 845	1 133	566.5
1981	341	549	77.75	8.70	96 279	1 382	691
1982	361	450	81.50	2.76	126 326	575	287.6
1983	377 ^b	365	79.25	7.62	146 800	1 846	923

^a When producers' equity in the fund is insufficient to cover their portion of payment, the provincial government provides funding in the form of producer loans

^b Several accounts cancelled, many inactive, 129 active accounts in February 1984

TABLE 8.10 STABILIZATION PROGRAM FOR HOGS, NOVA SCOTIA, 1975-83

Producers covered	Producers in province ^a	Guaranteed support price ^b	Stabilization payout ^b	Total output ^c	Payout		
					Total	Provincial contribution	Producers' contribution ^d
					(\$/cwt)	(t)	(\$000)
1975	226	55.50	0.48	106 054	82 806	41 403	41 403
1976	219	834	58.62	107 468	190 190	95 095	95 095
1977	225		56.50	0.59	116 460	99 486	49 743
1978	214		57.50	—	130 386	—	—
1979	231		62.50	3.12	153 026	701 720	350 860
1980	268		67.25	8.88	186 497	2 733 512	1 366 756
1981	292	763	76.75	7.62	212 231	2 492 408	1 246 204
1982	248		78.00	2.24	220 723	828 686	414 343
1983	222		75.75	6.17	226 351	2 356 902	1 178 451
			+ 1.36		+ 520 000	+ 520 000	

^a Number of Census Farms reporting pigs^b Average for four quarters^c Total commercial hog marketings, not all covered by NSPPSP^d Not all producers have elected to take loans when fund equity has been depleted, so producer contribution and total payout accordingly is somewhat overstated hereTABLE 8.11 STABILIZATION PROGRAM FOR HOGS, PRINCE EDWARD ISLAND, 1975-83^a

Guaranteed support price	Stabilization payout	Total output	Payout		
			Total	Provincial contribution	Producers' contribution
			(\$/cwt)	(t)	(\$000)
1975					
Q1	56.00	2.68	20 700	56	28
Q2	54.00	—	—	—	13
Q3	55.00	—	—	—	61
Q4	58.00	—	—	—	56
1976					
Q1	59.00	—	—	—	59
Q2	58.00	—	—	—	45
Q3	59.00	—	—	—	24
Q4	58.00	6.84	21 625	148	74
1977					
Q1	55.00	1.98	22 845	46	23
Q2	56.00	1.48	23 120	34	17
Q3	58.00	—	—	—	23
Q4	57.00	—	—	—	23
1978					
Q1	57.00	—	—	—	56
Q2	57.00	—	—	—	48
Q3	59.00	—	—	—	43
Q4	59.00	—	—	—	79
1979					
Q1	60.00	—	—	—	74
Q2	61.00	—	—	—	5
Q3	62.00	2.82	31 245	88	30
Q4	63.00	8.55	35 211	301	150

(continued)

TABLE 8.11 STABILIZATION PROGRAM FOR HOGS, PRINCE EDWARD ISLAND, 1975-83^a
(Concluded)

	Guaranteed support price	Stabilization payout (\$/cwt)	Total output (t)	Payout		
				Total	Provincial contribution	Producers' contribution
				(\$000)		
1980						
Q1	64.00	16.02	37 884	606	303	-
Q2	64.00	24.65	35 324	872	436	-
Q3	66.00	6.51	33 402	219	110	-
Q4	73.00	3.25	33 518	109	54	-
1981						
Q1	74.00	13.46		487	244	-
Q2	75.00	16.40		587	293	-
Q3	75.00	-		-	-	-
Q4	76.00	10.56		359	179	-
1982						
Q1	76.00	12.55		436	218	-
Q2	77.00	-		-	-	87
Q3	79.00	-		-	-	230
Q4	77.00	-		-	-	29
1983						
Q1	76.00	-		-	-	54
Q2	77.00	8.51		297	148	-
Q3	77.00	13.62		462	231	-
Q4	79.00	29.93		1020	510	-

^a Total production in Prince Edward Island was as follows: 110 434 head in 1975, 109 218 head in 1976; 113 384 head in 1977; 137 047 head in 1978; 161 159 head in 1979; and 170 092 head in 1980. Number of hogs covered was as follows: no record for 1975-78; 130 550 head in 1979; and 139 943 head in 1980.

Source: Prince Edward Island Department of Agriculture.

TABLE 8.12 FISCAL POSITION OF PROVINCIAL HOG STABILIZATION PROGRAMS YEAR END, 1985

Province	Estimated deficit end of 1985
British Columbia	\$1.6 million (half of which is the producers' responsibility)
Saskatchewan	\$22.5 million
Manitoba	\$6.4 million
Quebec	
1978 piglet program	\$3.5 million (one third of which is the producers' responsibility)
1981 slaughter hog program	\$8.0 million (one third of which is the producers' responsibility)
New Brunswick	\$4.9 million (producers' responsibility)
Nova Scotia	\$6.5 million (producers' responsibility)
Prince Edward Island	\$4.4 million (producers' responsibility)

CHAPTER 9: THE TRIPARTITE RED MEAT STABILIZATION PROGRAM

It will be recalled that price supports under the Agricultural Stabilization Act from 1958 to 1975 were based on 80% of the base price, where the base price, in turn, was an average of the previous 10-year prices for a given commodity.

The 1975 amendment of the Agricultural Stabilization Act provided a support price based on 90% of the previous five-year average price for a given commodity, plus current cash costs minus average cash costs in the preceding five years.

When one examines the 1970-75 period, the annual rate of increase in farm input costs rose from 1.9% in 1971 to 16.8% in 1973 and to 16.1% in 1974 (see Table 9.1). It is clear that price supports based on the previous 10-year average of prices for a given commodity did not begin to reflect the current increases that were taking place in farm production costs.

Likewise, when one examines the 1975-81 period, the annual increases in farm production costs far outstripped the provision in the 1975 amendment of the ASA for the indexing of farm costs in calculating price supports under the ASA.

In general, farmers were extremely critical of a price support policy that did not appear to compensate them for their rapidly escalating farm input costs. This continuing aggravation was exacerbated by the rise in the bank prime lending rate from 8.06% in 1977 to the high of 19.29% in 1981. During that same period the annual increase in energy prices skyrocketed from 12.1% in 1977 to 30% in 1981.

The unrest in the hog/pork industry over the inability of the federal price support policy to cope with the farmers' rapidly escalating production costs caused pork producers to turn to other alternatives for redress of their cost/price squeeze.

The three Maritime provinces established provincial stabilization programs for hogs in the early 1970s: P.E.I. in 1973 and Nova Scotia and New Brunswick in 1974. Under these programs an attempt was made to set price supports for hogs equal to the farmers' total cash costs of production.

B.C. set up its comprehensive Farm Income Assurance Act in 1973, and Quebec established

its Farm Income Stabilization Assurance Act in 1975. Saskatchewan established its Saskatchewan Hog Assured Returns Program (SHARP) in 1976.

In Ontario, the Ontario Hog Producers' Association flirted with the concept of supply management over a considerable number of years. While the supply management concept was never supported finally by the Ontario Hog Producers' Association (OHPA), the fact that supply management was the topic for debate at almost every annual meeting since 1968 indicates the concern that the OHPA had over the inadequacy of the existing federal price policy. At the 1968 annual meeting of the OHPA a resolution was passed which called for a study into the need for supply management. At the 1971 annual meeting, a call was made to have members of the OHPA polled as to whether or not they would support some form of production control. In 1974, the OHPA again debated the possibility of setting up some form of supply management for the hog industry. In 1981, the OHPA again debated the merits of a supply management program for the hog industry. In 1982, a comprehensive study was undertaken and a major report was produced on various alternatives that might be considered by the Ontario hog producers; supply management was one of those alternatives.

Following the 1975 amendment of the Agricultural Stabilization Act there was continuing criticism of the ASA price support policy, because the price support level under the ASA did not recognize the escalating increases in production costs, and there was continuing proliferation of provincial programs, with top loading and bottom loading of the federal ASA by provincial programs.

The introduction of the very diverse provincial programs created serious issues with respect to the equitable treatment of producers in the different provinces. These issues eventually encouraged the provinces and the various producer groups to seek a nationally uniform type of support policy for red meat producers in all parts of Canada.

In an attempt to obtain some form of consensus on a policy for the red meat sector, a technical committee of federal and provincial agricultural officials was set up in 1980 and was charged with the task of developing a national hog stabilization program. A plan was developed but it, too, met with criticism from many sides. The federal government insisted that any such plan must eliminate the need for provincial programs. Quebec and B.C. continued to insist on the right to top load any federal program. Saskatchewan insisted that price supports be based on a cost-of-production formula, while other groups resisted any price supports based on a cost-of-production guarantee because they believed it would eventually lead to the collapse of the program.

In July 1982, Ontario Agriculture Minister Dennis Timbrell proposed a tripartite red meat policy in the attempt to reach a compromise among the divergent interest groups involved in the red meat sector. Under Timbrell's proposal, the federal and provincial governments together with beef and hog producers would contribute equally to the funds required for the operation of the program. The program would provide some minimum form of price support for the cattle and hog producers involved.

At the beginning, the federal government was reluctant to participate in any discussion of the Timbrell proposal. As a result, in March 1983, the provincial ministers of agriculture set up their own task force to develop a national plan based on the Timbrell proposal. However, the provincial task force was unable to develop a consensus. B.C. and Quebec continued to insist on the right to top load the program. In the final analysis, only the federal government and the provinces of Alberta, Saskatchewan, Ontario and Manitoba agreed to proceed with the development of the tripartite plan.

In July 1983, four provinces (Alberta, Manitoba, Ontario and Saskatchewan) agreed to cooperate with the federal government in developing a national policy of support for the red meat sector.

A national plan was developed by the fall of 1983. This national plan was referred to as the Tripartite Red Meat Stabilization Program. This plan contained the following components:

- The plan was to provide the same level of stabilization payments to all participating producers across Canada.
- The cost of the program was to be shared equally among the federal and provincial governments and the participating producers.

- The provincial stabilization programs were to be eliminated.

Legislation based on the tripartite proposal was finally prepared by the federal government and was to be introduced for debate in the House of Commons in 1984. This debate did not occur because a federal election was called in September 1984.

Following its election in September 1984, the Conservative government proposed a Tripartite Red Meat Stabilization Program not unlike that proposed earlier by the previous Liberal government.

In July 1985, the Agricultural Stabilization Act was amended to provide, in the form of enabling legislation, for the development of the tripartite plan. The legislation provided for the establishment of separate agreements with each of the provinces and the producers of designated commodities.

Under the proposed agreements, the participating provinces would have up to five years to phase out existing provincial stabilization programs. Premiums and stabilization payments under the agreements would be restricted to the domestically consumed portion of the commodity under the agreement.

Support for hog producers under the agreement would be based on the "guaranteed margin" approach. The support price for any given quarter would be equal to the cash costs of production in the current quarter plus 95% of the average margin in the same quarter for the preceding five years. The margin for any quarter was to be equal to the national average market price for the quarter minus the national average costs in that quarter. Producers would be eligible for payments up to 2000 hogs per quarter, with an annual maximum of 8000 hogs marketed during a calendar year.

The response to the 1985 amendment of the ASA, particularly that part of the act relating to the Tripartite Red Meat Stabilization Program, has varied greatly among the provinces.

In general, Ontario, Manitoba, Saskatchewan and Alberta supported the general objectives of the tripartite program; British Columbia, Quebec and the Maritime provinces continued to object to the provision that the provinces were to phase out their individual provincial stabilization programs. B.C. opposed any attempt to eliminate the right of B.C. to help its producers through top loading programs. Quebec took the position that the federal government had no right to decide if Quebec should be allowed to maintain its own

independent provincial stabilization programs; Quebec has continued to insist that it will not support a national plan which does not allow provincial top loading and some recognition of different costs and agricultural strategies in the different provinces.

By June 1986, Ontario, Manitoba, Saskatchewan and Alberta had agreed to participate in the tripartite program for hogs. Discussions are continuing between the federal government and the other provinces with respect to the tripartite program for the red meat industry in Canada.

TABLE 9.1 INCREASE IN FARM INPUT COSTS, CANADA, 1970-86

	Annual increase in farm input cost, western Canada	Bank prime lending rate	Increase in GNE input price index	Increase in total energy costs
(%)				
1970	1.9	8.17	4.7	
1971	1.9	6.48	3.1	
1972	6.9	6.00	5.0	2.9
1973	16.8	7.65	9.1	9.0
1974	16.1	10.75	15.3	15.2
1975	12.8	9.41	10.8	13.6
1976	6.8	10.08	9.6	15.4
1977	2.6	8.06	7.4	12.1
1978	13.1	9.69	6.7	9.3
1979	17.2	12.91	10.3	9.8
1980	10.0	14.26	11.4	16.0
1981	14.9	19.29	10.6	30.0
1982	3.4	15.81	10.4	19.8
1983	1.0	11.17	5.4	7.8
1984	3.4	12.06	3.0	5.5
1985				
1986				

CHAPTER 10: THE SEARCH FOR POLICY ALTERNATIVES

Two major developments during recent years have confronted Canadian hog producers with some basic questions about future policy directions for their industry. These are the difficulty of establishing a coherent national price stabilization policy for the hog industry, and the 1985 U.S. countervailing duty on Canadian hog exports to the United States.

The most recent development, the decision by the U.S. Commerce Department and the International Trade Commission to impose countervailing duties on Canadian hog exports, set the stage for a major assessment of the policy alternatives facing Canadian hog producers. The U.S. action was particularly disturbing and surprising in view of the fact that both countries agreed in 1980 to a zero-bound tariff arrangement on trade in hogs and pork products.

The U.S. countervailing duty raised immediate questions as to when and under what circumstances Canadian hog producers should attempt to have the countervailing duty order removed. What policy adjustments can and should Canada make if there is to be a continuing and unimpeded export of hogs to the U.S.? In what way can Canada reconcile its domestic agricultural policies with its international trade policies? Indeed, when is a subsidy or a stabilization program of purely domestic concern and when is it of legitimate concern to countries with which Canada trades? If the U.S. countervailing duty on Canadian hog exports is not removed in the near future, what steps will need to be taken to cope with the production in excess of domestic consumption? Should national production be reduced to match Canadian consumption of pork products, or are there other policies which can and should be adopted to expand export markets for the excess production?

The fundamental policy choice facing Canadian hog producers is this: they can choose the open trade, competitive market route with all the adjustments and consequences associated with that fundamental option; or they can select the "protectionist" option, under which trade is curtailed as a matter of deliberate policy and national production is geared to the domestic market, with all the implications accompanying such a choice.

The second major concern facing Canadian hog producers is the one relating to national trade. Is Canada to have one common market for the production, marketing and pricing of hogs, or are these basic functions to be determined by 10 separate and independent provincial policies? Is it possible to develop a coherent national policy under the federal form of governance that characterizes the Canadian constitutional and political system? The answers to these questions have far-reaching implications for Canada's domestic policies as well as for Canada's trade policies with other countries.

These are some of the basic policy questions and challenges facing Canadian hog producers in the mid-1980s. But policy issues have long been an integral part of the evolution of the hog industry in Canada. Several times during the past quarter-century Canadian hog producers have been confronted with and have had to select a course of action from a set of widely divergent policy alternatives.

One of the first major policy questions related to the matter of competition in the marketplace. During the 1950s and 1960s, Canadian hog producers were preoccupied with the dominance of a few large buying firms in the meat packing industry.

The producers faced a number of policy alternatives in attempting to cope with their lack of bargaining power. Would producer selling cooperatives provide the remedy for their problem? Or would the solution be found by having producers establish their own cooperative packing plants, that is, a form of "forward integration"? Could regulatory power exercised through such instruments as anticombinations legislation achieve greater bargaining power for the hog producers? Or would the development of countervailing power through compulsory marketing boards be the most appropriate route to follow?

All of these alternatives were widely debated in the hog industry and were eventually adopted at one time or another. In the final analysis, it was the development of hog marketing boards which provided Canadian hog producers with their most effective form of countervailing power and which led, in turn, to a form of "workable competition" in the marketplace.

It is interesting to note that the hog producers did not choose, in the final analysis, to go the full distance along the supply management and regulatory route. They chose instead to combine marketing boards with appropriate government price stabilization programs as the best combination of policies to achieve the basic objectives of their industry.

This is not to suggest that other major policy alternatives were not discussed and debated from time to time, sometimes with great controversy.

Canada hog producers have frequently debated the merits and disadvantages of a comprehensive supply management and administered pricing system for their industry. The most controversial debate occurred with the introduction of Bill C-176 in the House of Commons in 1971. This bill involved a proposal to establish the Farm Products Marketing Agencies Act. The act provided originally that cattle and hogs should be included in the comprehensive supply management program provided for under the legislation. For well over a year, a barrage of criticism was focused on this act by a number of organizations vigorously opposed to any form of supply management for the red meat industry in Canada. After a long debate, an amendment to Bill C-176 in late 1971 removed cattle and hogs from the act.

Since 1971, hog producers have focused their attention primarily on improved forms of government price and income stabilization programs. There have been considerable differences of opinion among hog producers as to what form these price and income stabilization programs should take. These differences have been discussed in detail in Chapters 7, 8 and 9.

Even while the debate was taking place around the various federal and provincial programs, including the national tripartite policy, interest in a supply program has never been far below the surface in some regions of the country.

Current issues facing the Canadian hog industry appear to be no less challenging. The search continues for policy alternatives.

The search ranges across a broad spectrum of possibilities, from policy alternatives calling for minimum public intervention in the hog marketing system, to policy options which would involve considerable regulation and control of the industry.

In assessing these various policy alternatives, a number of fundamental considerations need to be kept in mind.

- Is the Canadian hog industry to operate in an "open trade" or a "closed" economy?

- Is Canada to have one "common market" or ten provincial markets for the production, marketing and pricing of hogs and pork products?
- What are the implications of each of the policy alternatives for relationships with other trading partners and for the general principles underlying the General Agreement on Tariffs and Trade (GATT)?
- What are the effects of the various policy alternatives for the hog industry for substitute products such as beef, poultry meat and fish?
- What are the public and private costs and the burden of those costs (taxpayers, consumers, producers) for each of the policy alternatives?
- To what extent would increasing involvement of Canadian hog producers in the international market expose them to complex economic forces such as variable exchange rates and nontariff barriers?

The analysis which follows in Part III and Part IV of this report attempts to set out the implications and consequences of a wide range of policy alternatives for the Canadian hog industry.

There can be no question that the entire shape and character of the Canadian hog industry by the year 2000 will be influenced enormously by the policy decisions made in the 1980s.

Decisions made in the 1920s to establish a premium quality bacon hog influenced policies and programs in the Canadian hog industry for several decades. Decisions taken in the 1950s and 1960s to establish provincial hog marketing boards pointed hog producers in a particular direction and had an immense influence on the production and marketing activities of the Canadian hog industry. Actions taken by several hog marketing boards in the 1970s to open up the Japanese hog market for Canada's pork products provided opportunities for expansion that had not been anticipated or seriously discussed a few years before.

What do Canadian hog producers have in mind for their industry by the end of the present century, and which policy alternative will best achieve those long-run objectives? These are the basic questions and challenges which need to be kept in mind in assessing the analysis and discussion which follow in the remainder of this report.

Whether opportunities and challenges or short-run problems and issues dominate the policy agenda in the 1980s remains the ultimate responsibility of Canadian hog producers themselves.

Part III

Framework for Policy Alternatives

CHAPTER 11: THE COMPETITIVE MARKET

Scarcity of resources, multiple and competing uses of those scarce resources, and the desire to maximize the overall output of a given society at least cost are the underlying economic realities confronting all types of political-social systems, ranging from primitive tribal groups to capitalistic industrial nations to socialistic, centrally planned economies.¹

All economic systems are confronted by the following basic questions.

- Which goods of the infinite variety that is technologically possible shall be produced and in what proportions?
- How, in terms of available resources and the state of the arts, shall any given combination of goods be produced?
- Who, in terms of the households and spending units, shall have claims, and in what amounts, against the goods that are produced? In other words, how is the national income to be distributed among members of society?
- When, in terms of the allocation of resources between present and future uses, shall goods be made available? (Mark, 1965, p. 47)

Whatever the political structure of the society, whether a market-oriented capitalistic society or a centrally planned economy, these questions must be confronted and answered.

In the case of the centrally planned economy (or centralized government decision making), decisions are made, for better or for worse, about the allocation of scarce resources (land, labor, capital, management) among competing uses within the economy (agriculture, steel, television sets), and choices are made about the distribution of income among various groups (farmers, teachers, doctors) in that society. The enormous complexity of the economic decision making process in a centrally planned system is obvious (Gregory and Stuart, 1981).² Problems relating to economic decision making are not much less difficult (if not quite as comprehensive or spectacular as in the USSR) within government and quasi-public bodies within capitalistic industrial societies such as Canada and the U.S.

Within the purely competitive, free enterprise market system, there is no conscious design or centralized control for that system. The literally thousands upon thousands of simultaneous

decisions made with respect to resource allocation and income distribution are so dispersed and so commonplace that they have been taken for granted. In the purely competitive economic system, producers are compelled by competition to organize their businesses and to produce in accordance with the wishes of consumers. Competition among producers not only forces them to recognize the preferences and desires of consumers, but also it tends to force them to be as efficient as possible in the conduct of their operations.

The fact that the competitive economic system has performed as well as it has, in spite of its many limitations, cannot be ignored by even the more severe critics of the system. We will deal with the limitations of the competitive economic system in the next chapter.

We will confine our attention in this chapter to a discussion of the functions, significance and limitations of the competitive market system underlying the Canadian hog/pork industry in Canada.

We recognize, of course, that the Canadian hog marketing system in Canada has been greatly modified during the past 25 years by government policies and institutional changes, but it would be a mistake to ignore the basic forces of the competitive market system which have continued to operate under and to pervade the vast overlay of federal and provincial programs which have been established for the industry. Indeed, a close examination of many of these federal and provincial programs will reveal an attempt to preserve and to strengthen certain aspects of competitive market economy. On several occasions, Canadian hog producers have advocated policies which would make the competitive market system perform more competitively and effectively, not replace it.

STRUCTURE OF THE MARKETING SYSTEM

The notion of a marketing system for hogs (and pork) begins with the concept of a market. A particular market may be represented by a specific transaction between a single packer and a single hog producer, an auction market where many packers and many sellers of hogs are

present, a transaction between a meat packer and a chain store, or a particular supermarket where consumers shop weekly for their supplies of pork products.

A marketing system, on the other hand, consists of a series of distinct yet interdependent markets. A marketing system in effect is the channel through which a commodity such as pork moves from the producer through a series of specialized markets to the ultimate consumer (Bucklin, 1970).

In a competitive marketing system, the individual markets are connected together and are coordinated through the price system (Trifon, 1961).³

A particular market in the system is said to be perfectly competitive when there is a large number of buyers and sellers present, no individual one of which has a perceptible influence on the price for that market; where the product bought and sold in the market is homogeneous; and where there is free entry to the market by potential competitors.

Obviously, one part of the marketing system may exhibit characteristics of a highly competitive situation while another part of the system may be characterized by a very restrictive form of competition.

Whatever the form of competition within the marketing system, certain functions and tasks must be performed by that system. There are a great many ways in which the functions of a marketing system may be described but the description most commonly adopted is the following (Breimyer, 1976; Kohls, 1961, pp. 18-19):

- exchange functions including buying (assembling of product) and selling;
- facilitating functions including grading and standardization, financing, risk bearing and market information;
- physical functions including storage, packaging, distributing, dispersing, processing, fabricating and transportation.

All of these functions must be kept in mind when an assessment is made of any particular part of the marketing system. In other words, a particular type of price behavior which may be perceived as a problem in one part of the marketing chain may be performing a vital function in another part of the same system.

COMPETITIVE MARKETING SYSTEM FOR HOGS

Prior to the introduction of hog marketing boards in Canada, hogs were marketed in a variety of ways.⁴ Until the 1920s, the terminal market was the central focus of most hog marketing systems in Canada. The terminal market evolved as an integral part of the system which depended on the railways as the main mode of transportation for livestock. During the 1920s, two important developments set the stage for far-reaching changes in the hog marketing system: work on the feasibility of carcass or rail grading for hogs, and the growth and development of the trucking industry.

In later years, the two primary marketing outlets for hogs were shipment of hogs directly to packers, where prices for hogs were negotiated on a private treaty basis between the packer and the hog producer, or directly to the terminal markets, where hogs were sold by public auction. However, these were not the only ways of selling hogs. Other methods included community auction sales, cooperative livestock shipping associations, independent livestock dealers, decentralized packer buying stations and local slaughter houses.

There is no doubt, however, that the bulk of the hogs were shipped directly to the packing plants in the earlier stages of hog marketing in Canada. While many methods were adopted in the attempt to bring about greater competition in the marketplace for hogs, the bulk of hogs were sold by private treaty. It was this aspect of the system, more than any other, which eventually persuaded hog producers that they needed more effective competition and/or greater bargaining power in the marketplace (Manitoba, Legislative Assembly, 1964).

ASSESSMENT OF THE COMPETITIVE MARKETING SYSTEM FOR HOGS

There are a number of criteria which can be used in the assessment of the performance of the competitive marketing system for hogs: marketing costs; productivity and efficiency of the system; profits; economic growth; equity; responsiveness to consumer needs; and price and income stability. Before we make such an assessment, the more general problems and issues associated with the system should be noted.

An earlier study of the livestock marketing system in Manitoba revealed that the major criticisms and complaints relating to hog marketing included lack of producer bargaining power in the marketplace, marketing costs and margins, and the role of the trucker. By far the most important concern was the perceived lack of bargaining power in the marketplace. The Manitoba study made the following observation (Manitoba, Legislative Assembly, 1960):

The loss in bargaining power was attributed to the decline in the proportion of the stock marketed through the Public Markets and the increase in volume sold directly to the packing plants. It was felt that in the direct method of marketing, prices are negotiated in a less competitive manner, since there is only one buyer present and the seller is usually less well informed than the buyer, and less skilled in price negotiations.

It became increasingly clear in Manitoba during the mid-1960s that hog producers wanted a more competitive marketing system and, failing that, they were prepared to press for greater bargaining power in the marketplace.

Complaints of hog producers in other provinces with respect to the hog marketing system were not unlike those voiced by the hog producers in Manitoba. Hog producers in Alberta were highly dissatisfied with the lack of competition in the marketplace. Attempts were made through the Alberta Livestock Cooperative to strengthen the role of the public stockyards in the hog marketing system. The cooperative also attempted to strengthen the bargaining position of hog producers by auctioning contracts to the major packers. In Ontario, the dissatisfaction among hog producers with what they considered their inferior bargaining position with the packers led to the development in 1943 of the Ontario Hog Producers' Association (Poetschke and MacKenzie, 1956).

Apart from the producers' complaints about the lack of bargaining power in the marketplace, other limitations of the competitive marketing system for hogs should be noted.

Daily, weekly and monthly fluctuations in prices for hogs and pork products, while an indispensable part of the "market clearing" function, are often seen as a poor guide for efficient allocation of resources in the hog industry.

Farmers basing production decisions on current prices usually find little relationship between such prices and the prices prevailing when the hogs are ready for the market.

The instability of hog prices also causes perceived inequities among producers. One farmer delivering hogs during one part of the day will frequently receive a price which is substantially different from that received by another producer who delivers the hogs at a different time of the day. These intra-day and intra-week price fluctuations have been a source of considerable annoyance to farmers.

It should be noted here, however, that the farmer is not the only stakeholder in the hog marketing system. A given price fluctuation may be a problem to the farmer but it may also be a very necessary part of the marketing operations for another part of the system if unwanted surpluses or shortfalls in pork products are to be avoided.

Still a further problem relates to the dual role played by prices in the marketing system: market clearing and income distribution (Wood, 1974). Prices which are necessary to clear the market as a result of an increase in hog production or a decrease in demand for pork products may be quite unsatisfactory to the hog producer from an income point of view. Of course, what the farmer sees as a problem may be viewed in quite a different light by the low-income consumer.

One of the major conclusions which can be drawn from any general analysis of the competitive marketing system for hogs is that price fluctuations, which are viewed by producers as a problem (price instability and uncertainty) and which have important consequences for the producer from a resource allocation and income point of view, are often performing an important economic function in another part of the system. For example, price fluctuations are a necessary part of the market clearing process by equilibrating short and long changes in demand and supply in both the domestic and international markets.

Attempts have been made through various public policies and programs to reduce the impact of price instability on the hog producers. The most significant policy has been the federal Agricultural Stabilization Act, which provides for transfer payments to producers when market prices drop below a specified minimum level. Both the federal and several provincial governments have been involved in price stabilization programs for hog producers.

Apart from the price instability issue, hog producers have contended that they lack bargaining power in the competitive marketing system. This loss of bargaining power came about, in large part, as a result of the decline in the proportion of hogs shipped to public markets and the increase in volume sold directly to the packing plants. It was this issue, more than any other, which eventually persuaded hog producers in several provinces to turn to marketing boards as a way of enhancing their bargaining power in the marketplace.

It is interesting to note, however, that prior to and even after the establishment of hog marketing boards, attempts have been made to preserve many elements of the competitive marketing system. Indeed, the teletype system of hog marketing developed by the Ontario Hog Marketing Board in 1961, and later adopted by the hog producers in Manitoba, prompted one observer (Martin, 1977) to remark:

Theoretically, no selling system of which I am aware comes closer to the perfectly competitive model than the teletype system used by the hog agencies.

There can be no doubt about the hog producers' dissatisfaction over the years with respect to the operations of the competitive marketing system. But the producers appear to have had a somewhat ambivalent attitude toward the system. Certainly, the dissatisfaction has been strong enough that producers in eight of the ten provinces have moved to develop marketing boards and commissions. But what is just as significant, hog producers, unlike several other commodity groups, have not decided, to date at least, to support comprehensive supply management and administered pricing programs.

Whether the traditional competitive pricing system or some other form of workable price competition continues as an integral part of the hog marketing system in Canada will depend on the effectiveness of the policies designed to offset the effects of the price instability, and on whether or not suitable government policies can be combined with the existing market structures to deal with such issues as the impact of general inflation on production inputs, income enhancement objectives and relations with foreign customers such as the U.S. and Japan.

CHAPTER 12: WORKABLE COMPETITION IN THE MARKETPLACE

FRAMEWORK FOR RESTRICTED COMPETITION

In our discussion of the pure competition economy, the basic assumption is that wherever goods are bought or sold, there are many buyers and sellers, not one of whom has enough control over output to have a perceptible effect on price. For some markets this is a reasonable assumption. For the most part, the ultimate consumers of most products are many and their individual purchases have no obvious effect on the general market price. Even here, however, the exception would be the banding together of food consumers in a food purchasing cooperative. For many markets, however, the buying and selling activities are dominated by a few buyers and sellers.

Where there are only a few buyers, the assumptions that they are price takers in the marketplace and that they will not attempt to bargain for a low price must be questioned. Ordinarily, a large buyer will attempt to negotiate for a price. He is in a position to bargain. He has the marketpower to influence the price. If there are many sellers, the buyer can force them to bargain. The result of such bargaining is generally a lower price than would otherwise prevail in a perfectly competitive market.

Under a bilateral oligopoly situation, where a few large sellers confront a few large buyers in the marketplace, the situation is characterized by negotiation and bilateral bargaining, where price may be determined within very wide limits depending on the relative power of the respective buyers and sellers. For example, if the few large sellers are well organized as a group (collusive oligopoly) and the buyers are less well organized, the sellers may be in a position to gain a monopoly profit from the marketplace. The reverse position would hold if the few large buyers, organized as a collusive oligopsony, faced a group of sellers who were not as well organized. Where power in the marketplace is relatively well balanced between a few large buyers and sellers, the resulting price and output tend to be very uncertain within a wide range of possibilities.

There is a great variety of possible market structures for buyers and sellers in the marketplace for agricultural commodities. One

of the classical studies of market structures for agricultural products was done by Nicholls (1941), whose observation still holds today:

There is probably no problem in economics where analysis is so difficult or results so uncertain as in the theory of competition among a small number of firms. (p. 6)

CONCENTRATION IN THE HOG MARKETING SYSTEM

Concentration of selling or buying power in the hog marketing system is not a new phenomenon. The Royal Commission on Price Spreads and Mass Buying (1973, ch. 4) expressed concern about the dominance of a few large firms in the meat packing industry. In 1958, the Ontario Hog Producers' Cooperative estimated that the "big four" (Canada Packers, Swifts, Burns and Schneiders) bought 56% of Ontario hogs (Kenyon, 1958).

Of the seven largest packing plants in British Columbia in 1980, the only Vancouver-based plant that bought hogs produced in British Columbia was Intercontinental Packers (AHPMB, 1980). Even the intercontinental plant in Vancouver imported the bulk of its hog supplies from its parent plant in Saskatoon. Fletcher's, the largest meat processor in British Columbia, obtained most of its hog supply from Alberta. Most of the smaller plants in British Columbia obtained their hogs from the local supply.

At the end of the 1970s in Alberta, the five largest firms accounted for approximately 95% of the hog purchases in that province. These firms were Swifts, Fletcher's, Canada Packers, Burns and Gainers. There was only one hog slaughter and processing plant in Saskatchewan, Intercontinental Packers Ltd., located in Saskatoon. The five major slaughterers and processors of hogs in Manitoba at the end of the 1970s were Burns, Canada Packers, O.K. Packers (Schneiders), Forgan and East-West Packers. At that time, Ontario had 29 firms that bid for hogs in the Ontario teletype marketing system. Of these, 10 were major processors with their own

teletype buying machines, nine were small Ontario firms and 10 were Quebec firms. The latter two groups of firms bought hogs in Ontario through the teletype machine located in the office of the Ontario Pork Producers' Marketing Board (CPC, 1979). In 1972, it was estimated that the top 12 slaughtering and processing firms in Quebec bought more than half the hogs in the province, and the top 20 purchased more than 70% of the hogs. In the Atlantic provinces in 1972, it was estimated that four firms bought two thirds of the hogs shipped, and that eight firms purchased close to 90% of the hogs (Restrictive Trade Practices Commission, 1961).

A more recent analysis of the situation is included in Chapter 3 of this report, where the major reasons for the continuing consolidation and plant closures within the slaughtering and processing industry are outlined.

On the selling side of the hog industry, there has certainly been a move toward greater consolidation and concentration of selling power. At the present time, hogs in eight provinces (nearly two thirds of all hogs in Canada) are sold through marketing boards. In the province of Quebec, where there is no hog marketing board, the majority of the hogs are produced by few, large operations run by individuals, feed mills and cooperatives.

The nature and extent of vertical integration and contracting in the Quebec hog industry are outlined in detail in Chapter 3.

It is to be noted that the concentration of selling power in the hog industry, while obviously significant, does not imply that the sellers have complete "monopoly" power in the hog industry. The sellers do not have control over importation of hog carcasses from the United States or processed pork products from other countries, nor do they have control over substitute meat products such as beef, mutton, poultry or fish. More specifically, the sellers do not exercise supply management control over the production of hogs, a necessary prerequisite for monopolistic power.

It is difficult to know how to categorize the structure of the hog marketing system in Canada at the present time. Certainly, on the buying side of the market, it could be generally described as oligopsonistic in nature. On the selling side, from a national point of view, the selling market may be generally described as oligopolistic if one assumes that the eight marketing boards compete, to some degree, with one another. At the provincial level there is only one seller where

a marketing board is involved and, to the extent that only provincial hogs are available to the buyers in that province, the seller has a potential monopoly position. However, in principle, buyers in any one province may have hogs (or pork carcasses) shipped from another province or pork carcasses shipped in from the United States. Furthermore, under a teletype or Dutch Clock system of marketing, prices are established by a "competitive" process, not "administered," as would be the case under a monopoly situation.

In the final analysis, none of the hog marketing boards controls the production of hogs and, to that extent, they lack the ultimate sanction of the pure monopolist, namely complete control over supply in the province. It must also be emphasized that hog pricing in any given province is closely related to the international market, particularly the United States.

REDUCING THE RESTRICTED COMPETITION IN THE MARKETPLACE

When any part of the marketing system is dominated by a few large buyers or sellers, one way of attempting to make the market more competitive is to break down or curtail the concentration of power. This certainly appears to have been the earlier objective of the combines legislation in Canada.

There is no doubt that the Combines Investigation Branch has been prepared to act from time to time, whenever it felt that competition in the meat packing industry was being seriously eroded or unduly constrained (Restrictive Trade Practices Commission, 1961, pp. 428-30).

In viewing the application of the Combines Investigation Act to the marketing of agricultural products, it is well to keep in mind the general intent of the legislation. The act, as it has been applied, does not appear to condemn bigness, concentration or fewness of buyers or sellers as such.

Skeoch (1956) has observed:

The rivalry of a few large sellers, provided price and other strategic variables are not eliminated by agreement, and provided express attempts are not made to eliminate other rivals or restrict entry, can be as fully conducive to the welfare of the economy as the type of

competition that has been accepted as characteristic of markets in which there are many sellers of a homogeneous product.

It appears, however, that the combines legislation was not as effective in creating greater competition in the marketplace as hog producers had originally anticipated. As a result, they turned to other methods of coping with the concentration of buying power in the marketplace.

DEVELOPMENT OF COUNTERVAILING POWER

In traditional economic analysis, restraint on the exercise of power by buyers (or sellers) was to be provided by effective competition on the same side of the market. That is, if a few large firms were exercising undue power in the marketplace, the best way of coping with that power was to increase competition among those firms, either by ensuring that there were no restrictions on entry to that side of the market by potential competitors, or by reducing the power among the firms by exercising the provisions of the combines legislation. This was a course of action generally supported by farmers when faced by oligopsonistic competition in the marketplace.

Even while supporting this type of action, however, farmers expressed a desire for greater bargaining power in the marketplace.

The economic rationale for this desire by farmers for greater bargaining power was developed and given considerable publicity by Galbraith (1952) in his book *American Capitalism*. Galbraith suggested:

Private economic power is held in check by the countervailing power of those who are subject to it.... The fact that a seller enjoys a measure of monopoly power, and is reaping a measure of monopoly return as a result, means that there is an inducement to those firms from whom he buys or those to whom he sells to develop the power with which they can defend themselves against exploitation. It means also that there is a reward to them, in the form of a share of the gains of their opponents' market power, if

they are able to do so. In this way the existence of market power creates an incentive to the organization of another position of power that neutralizes it. (p. 112)

Galbraith suggested that the development of agricultural cooperatives in the marketplace was a manifestation of the development and exercise of countervailing power. He further concluded that the provision of assistance to farmers to help develop countervailing power has become an important function of government.

ROLE OF COOPERATIVES IN HOG MARKETING

Cooperatives in livestock marketing have been of three general types: local shipping associations; central selling organizations; and those which have been engaged in the meat packing business.

Examples of cooperative shipping associations for hogs were developed, at one stage, in almost every province in Canada. In Alberta, the cooperative shipping associations operated in conjunction with the Alberta Livestock Cooperative Ltd. In Saskatchewan, the livestock commission department of the Saskatchewan Wheat Pool acted as the sales agency for shipping associations. In Ontario, the shipping associations worked through the United Cooperatives of Ontario.

Central selling cooperatives for hogs were also developed in several of the provinces. Examples include the Alberta Livestock Cooperative, which first sold hogs directly to the packers on the basis of contracts negotiated with the packers; later it served as a commission agent on the stockyards in Edmonton and Calgary selling the hogs of member organizations.² In Ontario, in 1955, the Ontario Hog Producers' Cooperative was formed. It served as a selling agency of the Ontario Hog Marketing Board. In 1953, the livestock department of the Manitoba Pool Elevators opened the Brandon Cooperative Livestock Auction Market, where it was proposed that hogs would sell by public auction.

Examples of cooperatives entering the meat packing business included the First Cooperative Packers of Ontario (COPACO) established in Barrie in 1929, the *Coopérative Féderée* in Quebec which at one stage operated three packing plants, and the Pool Packers at Brandon which was established by the Manitoba Pool Elevators.

The cooperatives in hog marketing provided two possible ways of increasing farmers' incomes: raising prices to farmers by more effective bargaining power in the marketplace; and by reducing marketing costs. In general, cooperatives were more successful in reducing marketing costs than in raising prices (Campbell, 1957).

The failure of voluntary cooperatives to develop and sustain effective countervailing power in the marketplace for hogs was not entirely unexpected.

Galbraith (1952) in analyzing the strengths and limitations of cooperatives noted:

As a device for getting economies of larger-scale operations in the handling of farm products or for providing and capitalizing such facilities as elevators, grain terminals, warehouses and creameries, cooperatives have enjoyed a considerable measure of success. For exercising market power they have fatal structural weaknesses. The cooperative is a loose association of individuals. It rarely includes all producers of a product. It cannot control the production of its members and, in practice, it has less than absolute control over their decision to sell.... A strong bargaining position requires ability to wait - to hold some or all of the product. The cooperative cannot make the non-members wait; they are at liberty to sell when they please and, unlike the members, they have the advantage of selling all they please. In practice, the cooperative cannot fully control even its own members. They are under constant temptation to break away and sell their full production. This they do in effect, at the expense of those who stand by the cooperative. (p. 161)

Without complete control of supply, cooperatives were not in a strong position to exercise countervailing power in the marketplace. In Ontario, for example, the hog producers sought to make their programs compulsory through marketing boards to obtain greater bargaining power in the marketplace (Campbell, 1957, p. 30).

In general, hog producers in Canada came to the conclusion that they could not achieve the desired objectives through voluntary cooperation. This led to the further conclusion that what was needed was legislation which would permit complete control of the product.

DEVELOPMENT OF MARKETING BOARDS

Agricultural producers in Canada have debated, discussed and experimented with various forms of marketing board legislation for nearly half a century. The first provincial action taken to set up a compulsory marketing organization was the British Columbia Produce Marketing Act passed in 1927. During the ensuing 50 years both federal and provincial governments became involved in the establishment of a variety of compulsory marketing boards. After several challenges in the courts with respect to the constitutional validity of certain aspects of the marketing board legislation, an acceptable legal and political framework was finally established for the development of a wide range of marketing board activities in Canada. The two most important legislative actions related to the Agricultural Products Marketing Act passed in 1949 and the Farm Products Marketing Agencies Act passed in 1972. Under the provisions of the 1949 act, provincial marketing boards had their authority extended to interprovincial and export trade matters. The 1972 act provided for the establishment of national marketing boards with powers of supply management.

One of the best definitions of a marketing board has been provided by Hiscocks (1972):

A marketing board can be defined as a compulsory horizontal marketing organization for primary or processed natural products operating under government delegated authority. The compulsory feature means that all farms producing a given product in a specified region are compelled by law to adhere to the regulations of a marketing plan. The horizontal aspect means that marketing boards control the output of all farms participating in the particular marketing scheme and that they aggregate the supply from all the farms up to a chosen or permitted level. Government

authority through legislation is essential to achieve the required compulsion. The power of the boards utilizing this authority is generally wide enough to affect the form, time and place of sales and directly or indirectly, the prices. It is clear that this is a powerful and far-reaching type of market organization and that society takes a very significant step when it gives these powers to one group in the economy.

Most boards have wide-sweeping powers available to them; not all, however, choose to exercise these powers. The general powers of marketing boards may be summarized as follows:

- pooling of prices;
- power to set wholesale or consumer prices;
- power to set minimum or maximum producer prices;
- power to set prices by formula, negotiation or price fixing;
- power to set marketing or production quotas for every producer;
- power to require licensing of growers, producers, processors or dealers;
- power to seize and dispose of any product marketed contrary to board orders;
- may have power to regulate interprovincial and export trade;
- may have some form of indirect control over foreign imports;
- power to purchase and/or sell the regulated product;
- may supply market information to producers and other interested parties;
- may have resources to develop new domestic markets;
- may have resources and authority to develop new export markets; and
- may undertake promotion of the regulated product.

The marketing boards in Canada vary tremendously in terms of the powers exercised over the production, marketing, processing and pricing of agricultural products (Hiscocks, 1974, p. 20).

At the top of the list are those boards, such as the fluid milk boards, which directly fix prices and establish marketing quotas for a given milkshed. Close to the top of the list are the poultry marketing boards which set marketing quotas and minimum sales prices.

Another group of boards concentrate on the negotiation of prices with major buyers of the product. These boards ensure that every producer receives the same basic price, that quality standards and grades are uniform and consistent, and that delivery arrangements are satisfactory.

There is still another group of marketing boards which exercise minimum powers under their legislation. Their basic objective would appear to be a better organization of existing markets. Examples include the Ontario Fresh Fruit Board, the Alberta Feed Grain Commission and several fruit and vegetable boards.

As we will see later, the hog marketing boards in Canada vary considerably in terms of the powers exercised and the type of pricing policies followed. In all cases, however, no attempt has been made, to date at least, to adopt the supply management policies followed by some of the other commodity boards in Canada.

EMERGENCE OF HOG BOARDS

While the hog marketing boards in the various provinces started at different times and under somewhat different circumstances, the persistent and underlying pressure by hog producers was the desire for greater bargaining power in the marketplace. In some cases this enhanced bargaining power was to be used to create a more competitive marketing system; in other instances, more direct bargaining devices were developed to deal with the packers.

In almost all instances, the hog producers attempted originally to achieve the goal of greater bargaining power by means short of compulsory marketing legislation.

Prior to the development of the Hog Producers' Marketing Board in Ontario in 1946, local cooperative marketing associations were very popular (Kenyon, 1958). In the Maritime provinces, the Maritime Cooperative Services Limited was active in the shipping and selling of hogs (Poetschke and MacKenzie, 1956). In Alberta, the Alberta Livestock Cooperative was very active in bargaining with the packers for the hog producers (Poetschke, 1960).

In almost all cases, however, hog producers eventually decided that the cooperatives did not have sufficient control over their own members, much less control over overall hog supplies, to exercise much bargaining power in the marketplace.

The first province to move toward a compulsory marketing plan for hogs was Ontario, with the establishment of the Hog Producers' Marketing Board in 1946. It is interesting to note, however, that it was not until 1960 that it became compulsory for all hog producers in Ontario to ship their hogs through the board. During the 1946-50 period, various attempts were made to give hog producers greater bargaining power in the marketplace short of complete control over the marketing of hogs. After a long and sometimes bitter struggle between the hog producers and the packers, the teletype system of selling, using the Dutch auction bid method of pricing, was adopted in Ontario.

The next boards were established in New Brunswick in 1951 and in Nova Scotia in 1953. In the initial stages of their operations, the two boards did not bring about any great change in the marketing system for hogs. One study (Poetsche and MacKenzie, 1956) indicated:

It would appear that the marketing legislation has been used in both provinces to ensure that the shipping clubs continue to operate, rather than to alter the marketing system. (p. 65)

The next province to adopt a hog marketing plan was Manitoba with the establishment of the Hog Marketing Commission in 1964. The Manitoba commission adopted the teletype system of marketing and pricing, which had earlier been developed in Ontario. Between 1964

and 1972, prior to the period when the commission was replaced with the compulsory Hog Producers' Marketing Board, the hog producer in Manitoba had two options for selling: consigning his hogs for sale through the commission, or continuing to ship hogs directly to packers and to negotiate the price himself.

The primary purpose of the Manitoba Hog Marketing Commission was to create an open and more competitive marketplace for hogs.

In Alberta, the Hog Producers' Marketing Board was established in 1968, and in October 1969 the board opened its telebid system of hog marketing. The marketing system adopted by the board was similar to that established in Ontario and adopted later by the province of Manitoba.

The province of Saskatchewan established the Hog Marketing Commission in 1972. After considerable study, the commission rejected the teletype system of hog marketing and opted instead for a negotiated, written offer selling system.

The province of P.E.I. established its hog marketing board in 1972. Hogs were sold to the packers on a formula pricing basis.

After nearly four decades of structural change in the hog marketing system in Canada, it appears that hog producers have achieved a measure of equality of bargaining power in the marketplace with the buyers of their products. It seems that this equality of bargaining power has been translated into a form of workable competition in the marketplace.

Indeed, it appears that the buyers and sellers of hogs have much more in common at the present time than anyone could possibly have anticipated 10 or 15 years ago. Both buyers and sellers have a mutual interest in the type of price support policies developed for the industry, and there can be little doubt that both groups have a mutual interest in the type of trade policies developed for the country.

CHAPTER 13: BASIC FEATURES OF AGRICULTURAL PRICE SUPPORT POLICIES

Many forces, both domestic and international, have influenced and shaped the various federal and provincial agricultural price support programs which have evolved in Canada over the past 25 years. Farmers have pressed for policies which would provide them with some security against low and unstable prices and incomes resulting from a wide variety of factors such as uncontrollable changes in the weather, unpredictable shifts and changes in domestic and foreign markets, the adverse impact of macroeconomic forces and policies such as inflation and high interest rates, and the adverse consequences of agricultural policies adopted by other countries such as the U.S. and the EEC.

Whatever the reasons for the great variety of agricultural price support programs that have evolved in Canada, there is a need to examine the strengths and weaknesses of the various policies; to analyze the objectives, the public and private costs and the methods used to support prices; and to determine the interregional and international implications of the various programs. Are the programs effectively meeting the objectives set for them? Which type of price support policy would best meet the future needs of the Canadian hog industry? How should the existing policies be adjusted to better serve the objectives of this industry in Canada both from a domestic and international point of view?

OBJECTIVES OF PRICE SUPPORT POLICIES

In general, the objectives of most of Canada's agricultural price support policies are expressed in such broad terms that it is difficult to know precisely what these policies are intended to achieve. For example, the general objective of the Agricultural Stabilization Act is expressed as follows:

Whereas it is expedient to enact a measure for the purpose of stabilizing the prices of agricultural commodities in order to assist the industry of agriculture to realize fair returns for its labour and investment, and to maintain a fair

relationship between prices received by farmers and the cost of goods and services that they buy, thus to provide farmers with a fair share of the national income....

It is difficult to know whether the ASA is designed simply to stabilize prices around the longer-run forces of demand and supply in the marketplace, to raise farm prices above those which would normally prevail in the marketplace, to compensate for inflationary forces in the general economy, or to provide farmers with an income equivalent to that earned in similar occupations in the urban-industrial economy.

The provincial price support programs are equally ambiguous in terms of the objectives sought. While most of the provincial programs emphasize stabilization as the objective, it seems that other objectives such as income enhancement and regional economic development may be more important than the stabilization objective.

One of the more comprehensive statements of agricultural policy objectives was developed by Agriculture Canada in the 1970s (Figure 13.1). In this statement, the policy objectives not only were clearly defined for agriculture but also were linked to Canada's overall national goals.

A closer examination of Canada's agricultural price support policies reveals the following objectives:

- price (and income) stabilization;
- price (and income) enhancement;
- compensation for the results of the impact of general inflation on farmers' input costs, or in the case of several provincial programs, countervailing subsidies to offset the effects of price supports and other production subsidies in competing provinces; and
- regional economic development, with inducements for local investment and job-creating programs relating to the agricultural industry.

When one examines the overall objectives of agricultural price support policies in Canada, it becomes clear that all of the policies have been confronted with a very fundamental question: how can price policy be used to improve farmers' income while at the same time recognizing that

prices are used to allocate resources within the industry? Can such policies deal with the farm income problem while coping with the efficient allocation of resources in production, distribution and consumption? Have price policies been used to allocate resources among regions of Canada on the basis of comparative advantage, or have the price policies been dominated by regional income and development issues?

As one observer (Brandow, 1955) remarked:

The conflict between income objectives and resource allocation objectives has been so clear that it is common among economists to say that price may be used for either but not for both. (p. 716)

METHODS OF SUPPORTING FARM PRICES

There is a variety of means used to support farm prices. The means which can be used to support prices under the Agricultural Stabilization Act are as follows:

Powers of Board

10. (1) Subject to and in accordance with any regulations that may be made by the Governor in Council, the Board may
 - (a) purchase any agricultural commodity at the prescribed price;
 - (b) pay to producers of an agricultural commodity, directly or through such agent as the Board may determine, the amount by which the prescribed price exceeds a price determined by the Board to be the average price at which the commodity is sold in such markets and during such periods as the Board considers appropriate;
- (c) make such payment for the benefit of producers as the Governor in Council may authorize for the purpose of stabilizing the price of an agricultural commodity at the prescribed price;
- (d) sell or otherwise dispose of, package, process, store, ship, transport, export, insure or otherwise deal in any commodity purchased by the Board under this section;
- (e) enter into contracts or appoint agents to do anything authorized under this Act;
- (f) purchase at the request of any department or agency of the Government of Canada any agricultural commodity required by such department or agency; and
- (g) do all such acts and things as are necessary or incidental to the exercise of any of its powers, duties or functions under this Act.

- (2) For the purpose of stabilizing the price of an agricultural commodity, the Board may exercise all or any of its powers under this section in relation to any food product thereof, and for the purposes of this section the expression "prescribed price" in relation to such food product shall be construed to be such price as is determined by the Board to be proportionate to the prescribed price for such agricultural commodity.

In general, the means used to support farm prices may be summarized as follows:

- deficiency price payments;
- purchase-store-disposal method of support;
- production control and administered prices; and
- enhancement of demand.

In the case of the deficiency price payment approach, farmers are awarded a direct payment (government cheque) based on the difference between the prescribed price support level and the market-clearing price. The deficiency price policy may be illustrated in Figure 13.2.

In the absence of any price policy, the market clearing price would be P_M (\$168/t) and the amount bought and sold is indicated by the quantity Q_M (Figure 13.2).

Now suppose a parity price is set for wheat at the level P_p (\$262/t) and the quantity supplied (Q_p) by farmers at that price is allowed to clear the market, the market price would be P_c (\$87/t); this is the price consumers would pay for wheat. The difference between the parity price and the market clearing price would be (b c) and this is the price payment made directly to farmers on the quantity Q_p .

The cost of the deficiency price policy is borne essentially by the taxpayer. The farmer receives the parity support price while the consumer pays less than the normal price for the wheat.

Under the purchase-store-disposal approach, the specified price support level (parity price of \$262/t) is achieved by the government's purchasing or taking excess product from the marketplace and storing the surplus. In Figure 13.2, the government would purchase quantity a b in order to maintain the price at parity P_p . The government would store quantity a b during times of low prices and during a subsequent period when market prices rise above the support price level P_p , the government would feed the surplus stored stock (a b) back into the marketplace. It is to be noted in Figure 13.2 that consumers pay the price P_p . In principle, this technique of supporting farm prices should not involve a public cost with the exception of those costs associated with the administration of the program and the temporary storage of the surplus stock.

What often happens in practice, however, is that the agricultural producers are not happy to see the surplus stock originally purchased by the government eventually returned to the

marketplace. The result is that government frequently becomes involved in costly surplus disposal activities in foreign markets. Apart from the antagonism created in foreign countries by these actions, the government generally incurs losses on the disposal of these stocks.

The relative costs and overall effectiveness of the two policies – the deficiency price payment policy and the purchase-store-disposal policy – depends on the price elasticities of demand and supply. Figure 13.3 illustrates the situation where there is a relatively high price elasticity of demand and supply for wheat; that is, a small change in price induces relatively large changes in the quantity demanded and supplied of wheat. Under this set of conditions, the government would have to purchase relatively larger quantities of wheat (quantity a¹b¹) in order to maintain the parity price to farmers of \$262/t. Conversely, however, under the deficiency price payment policy, the government would make a relatively smaller direct price payment (b¹c¹) to farmers.

Another type of policy used to raise farm prices to some specified level of support is that of production control (Figure 13.4). At quantity Q''_m , the resulting price to farmers would be \$168/t. If the parity price of \$262/t is to be achieved, under a production control program, quantity would have to be cut back to Q''_s (Figure 13.4). The more price inelastic the demand, the less production has to be reduced in order to achieve the parity price. Conversely, if the product has a relatively high price elasticity of demand, production would have to be cut very significantly in order to increase the price level to the parity price of \$262/t.

Still another technique that may be used to increase farm prices involves demand enhancement policies (Figure 13.5). The primary purpose of this policy is to shift the demand curve to the right. This may be done through the use of programs such as the Canadian International Development Agency in underdeveloped countries and concessional export credit policies by finding new markets for the product in question, such as the use of grain in the manufacture of bio-ethanol products used as additives in fuel for cars, or by persuading the hotel, restaurant and institution trade to promote and expand the use of pork.

In the attempt to use the forces of the competitive marketplace to control production (rather than using centralized supply management controls) while at the same time providing

some level of price support to farmers, multiple pricing policies have been used. The essence of the policy is outlined by Brandow (1955):

The program described here calls for assigning marketing allotments on historical bases to producers. With certain exceptions, the total of producer allotments for each commodity is to be about 75% of total marketings in a base period. Market prices are not to be supported or production controlled. If market prices fall below intended prices, direct, compensatory payments are made on the marketings not in excess of each producer's allotment. Quantities in excess of allotments may be marketed but return only the market price to the producer.... Thus the attempt to use price for both income and resource allocation objectives is made by dividing each producer's output of each designated commodity into a major portion receiving income support and a residual portion on which the market value of marginal production is realized. (pp. 717-18)

This type of policy may be illustrated in Figure 13.4. The intended price would be set at p^* (\$262/t). The marketing allotment would be represented by quantity Q^* . Any marketings beyond the specified allotment of Q^* would be priced in the marketplace. For example, any marketings in excess of Q^* would be priced along the downward-sloping portion of the demand curve a" c". At quantity Q^* , for example, the market price on the marginal quantity would be \$87/t.

DETERMINATION OF PRICE SUPPORT LEVELS

There are many methods and criteria that have been used in determining what the price support level ought to be. We will examine only three of those methods: parity price supports; average of previous market prices; and price supports based on cost of production.

Parity price supports

There are many definitions of a parity price. For the purposes of this discussion we will define them as price levels to farmers in a given period that will give agricultural commodities in a given period a purchasing power with respect to articles that farmers buy, equivalent to the purchasing power of agricultural commodities in a specified base period.

The parity price concept may be illustrated with a simple example.

Let us suppose that 20 000 bu of wheat at \$165/t in 1973 would buy a certain type of tractor worth \$33 000. If 20 000 bu of wheat in 1985 is to have the same purchasing power as in 1973, wheat price in 1985 would have to be \$398/t in order to purchase the same type of tractor now worth \$79 584.

A more sophisticated illustration of the parity price concept is outlined in Table 13.1. The representative base period selected for the parity price policy is 1973-74 to 1977-78. Accordingly, a parity price for wheat in 1984-85 would be \$262/t compared with the actual market price of \$168/t (Table 13.1).

A parity price policy has an immense appeal. It gives the impression of equity and fairness. It appears to represent an easy and objective way of setting price supports for farmers. After 30 years of experience with the policy in the U.S., however, it has become a discredited concept (Shepherd, 1952, 1947). The general consequences and disadvantages of the parity price policy may be summarized as follows:

- needed adjustments in agriculture were impeded;
- production encouraged in high-cost years;
- commercial outlets, both domestic and foreign, were restricted;
- excessive and costly stocks of nonperishable commodities were accumulated and perishable commodities were wasted;
- production controls and marketing quotas were inevitable; and
- substantial government subsidies were made to agriculture during periods of prosperity.

Many other limitations and disadvantages could be added to the list.

Price supports based on previous market prices

In the attempt to provide farmers with some level of basic support during a given period while still attempting to keep the basic support price sensitive to the competitive forces of the marketplace, price policies have been developed in Canada where the support level has been based on some moving average of previous prices.

This was the basis for the price support levels set for the various commodities under the Agricultural Stabilization Act when it was established in 1958. Price supports under the ASA, 1958, were set at 80% of a "designated base price." The base price, in turn, was based on a 10-year moving average formula; that is, a moving average of prices during the previous 10 years.

A simple example of this type of policy is illustrated in Table 13.1. In this example, a price support for wheat was based on a five-year moving average.

There is little question that this type of policy reflects (with a lag period) the forces of the marketplace. It does help to provide greater price stability. However, as the experience illustrated in Canada during the 1970s when general inflation was rampant, price supports based on averages of previous prices lagged far behind the farmers' production input costs.

Price supports based on cost of production

A detailed discussion of the reasons why farmers pressed for price supports based on production costs is included in Chapter 8. Suffice to note that double-digit inflation in the Canadian economy did more than any other factor to bring about price supports based on costs of production.

On the surface, it would appear that a price support policy based on production costs is a fair and just policy. But the task of deciding what is a representative or a fair cost is far from an easy one.

Typically, a production cost for a given commodity is determined by selecting a representative sample of farmers producing the given commodity. Detailed cost data are collected from this representative sample. Almost invariably, when these cost data for each producer are arrayed on a chart, one finds a downward-sloping cost of production curve ranging all the way from high-cost producers to very efficient, low-cost producers.

Where on this cost chart is the price support level to be established? If it is established toward the high end of the cost curve, the price support may cover the costs of the high-cost producer, but it clearly provides an unnecessary windfall gain to the low-cost producers. On the other hand, there are few price support policies which would pass the political test if they were set on the basis of the costs of the most efficient producers.

Problems associated with price support policies based on cost of production are compounded when one is setting a price support for various regions of the country. Evidence of the difficulties may be found in the extensive discussions on Bill C-25 (amendments to the Agricultural Stabilization Act) held by the House of Commons Standing Committee on Agriculture (1985).

Some indication of the relative impact of the various methods used in developing a base for price supports is outlined in Figure 13.6.

DOMESTIC AND INTERNATIONAL CONSEQUENCES

As a relatively large exporter and importer of agricultural products, Canada has a highly interdependent relationship with other trading nations. The Canadian agricultural industry is extremely vulnerable to the effects of domestic agricultural policy changes in other countries and, conversely, domestic agricultural policy changes in Canada have potential consequences for other nations with which Canada trades.

In this chapter, we will focus on the potential effects of Canada's alternative price support policies on other countries. The major effects can be examined in the context of two separate categories: dumping agricultural products abroad; and use of export subsidies to promote the expansion of Canadian agricultural exports.

The formal framework for the examination of this highly complex topic can be found in two particular articles of the General Agreement on Tariffs and Trade (GATT): Article VI relating to dumping; and Article XVI relating to subsidies. The text of these articles is found in Appendix M.

Paragraph 1 of Article VI condemns dumping, which it defines, and allows member countries to impose anti-dumping duties. However, two basic criteria have to be met before an anti-dumping levy can be imposed. There must be evidence of dumping and of material injury. This provision is laid out in paragraph 6 of this article.

Article XVI discourages subsidies, but sets out procedures by which contracting parties will notify and discuss with other contracting parties their need for a subsidy, including any form of income or price support.

While in theory the contracting parties may waive the requirement under Article XVI relating to bilateral negotiations, it has been the general practice under the GATT for an injured contracting party to notify the other party concerning the injury, with the objective of seeking some form of reconciliation or mutual agreement on a remedy for the problem.

The imposition of a countervailing duty on Canadian hog exports to the U.S. is a more recent example of the application of the provisions contained under Articles VI and XVI.

Given the growing protectionist trade policies, it is clear that Canada must exercise care in its application of domestic price policies in the agricultural industry. Policies which may appear to be highly desirable from a strictly domestic point of view may have serious consequences from the standpoint of trade with other nations.

However, the relationship between domestic and export subsidies is an extremely complicated area. During the Tokyo Round of the GATT Multilateral Trade Negotiations, an intensive if sometimes extremely controversial attempt was made among the contracting nations to arrive at some form of international agreement on the entire subsidy area. The result of the GATT

discussions was the publication of the GATT (1979a) *Subsidies Code*.

While the *Subsidies Code* did much to clarify the issues and to provide a general framework for the handling of the subsidy issue, many areas and issues remained unresolved. There is still great uncertainty concerning definitions of export and domestic subsidies, when and under what circumstances material injury occurs and when a country is justified in applying countervailing duties against certain export subsidies (Hufbauer, 1983).

The U.S. action to impose countervailing duties on hog exports to the U.S. clearly indicates that Canada cannot develop its domestic price support policies in isolation from its trading policies and relationships with other countries. Likewise, Canada has clearly indicated to other countries that they cannot ignore the external consequences of their domestic agricultural programs.

There are many reasons why both federal and provincial governments have become involved in agricultural price support programs in Canada. But it is clear that the tangle of federal-provincial policies leaves Canada open to criticism from other trading nations and, at times, extremely vulnerable to countervailing actions of those countries.

It will require considerable skill and ingenuity for Canada to balance the unique needs and political forces behind its domestic policies with the need for policies that can be defended in the international trading arena.

TABLE 13.1 CALCULATION OF PRICE SUPPORT^a

Actual price wheat (\$/t)	Farm input price index (1981 = 100)	Parity price of wheat	Wheat price based on:		Wheat price based on production	
			Average previous 5-year price (\$/t)	90% average previous 5-year price (\$/t)	Total cost (\$/t)	Variable cost (\$/t)
1973-74	165	44.7			66	35
1974-75	155	50.5			75	40
1975-76	133	56.4			84	45
1976-77	105	57.9			86	46
1977-78	103	62.5			93	49
Average	132	54.5				
1978-79	139	73.2	177	132	109	58
1979-80	178	81.9	199	127	122	65
1980-81	205	93.2	226	132	138	73
1981-82	185	102.2	248	146	152	80
1982-83	169	103.7	252	162	154	82
1983-84	177	104.9	254	175	156	83
1984-85	168	107.8	262	183	160	85

^a Price supports for wheat based on: parity price; average of previous 5-year price and 90% of previous five years; cost of production, including variable and total costs

FIGURE 13.1 AGRICULTURE POLICY OBJECTIVES

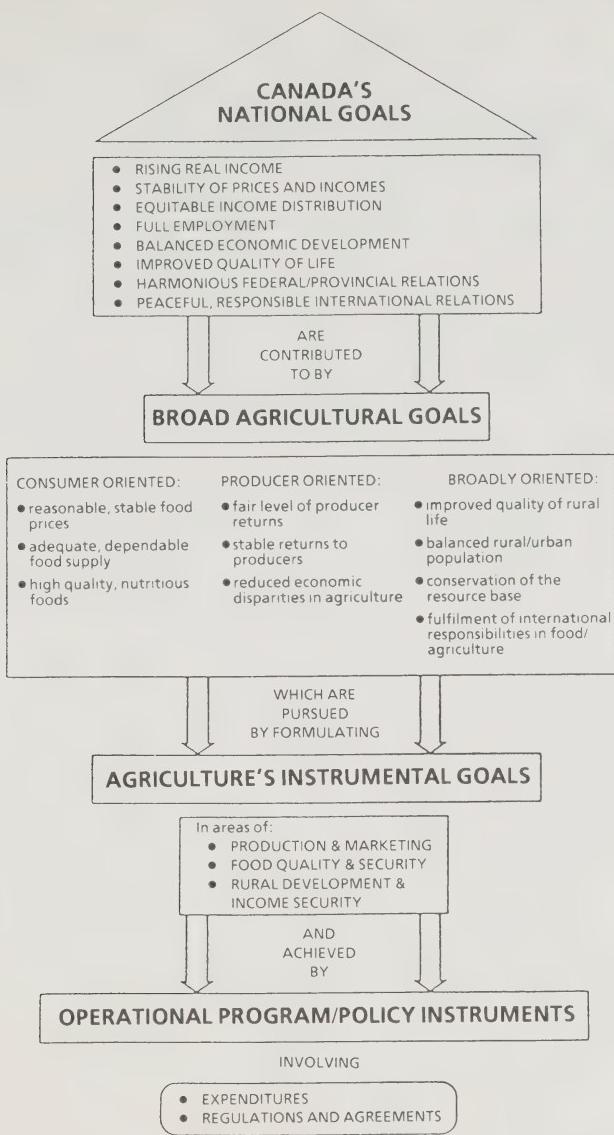


FIGURE 13.2 MARKET CLEARING PRICE

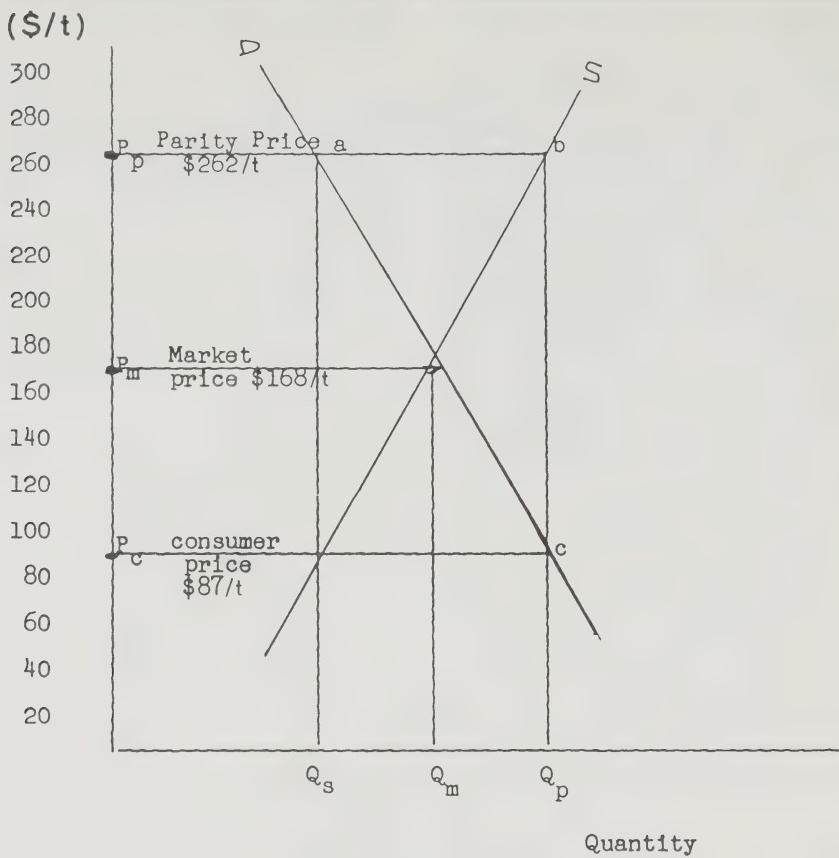


FIGURE 13.3 MARKET CLEARING PRICE WITH HIGH PRICE ELASTICITY

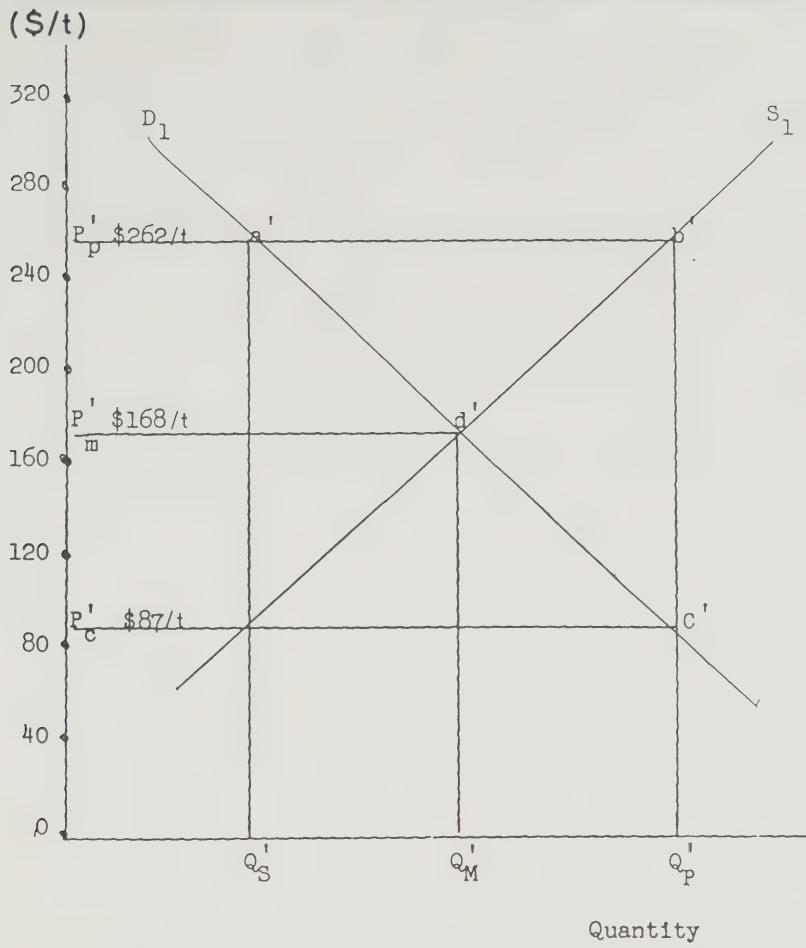


FIGURE 13.4 PARITY PRICE WITH PRICE INELASTICITY

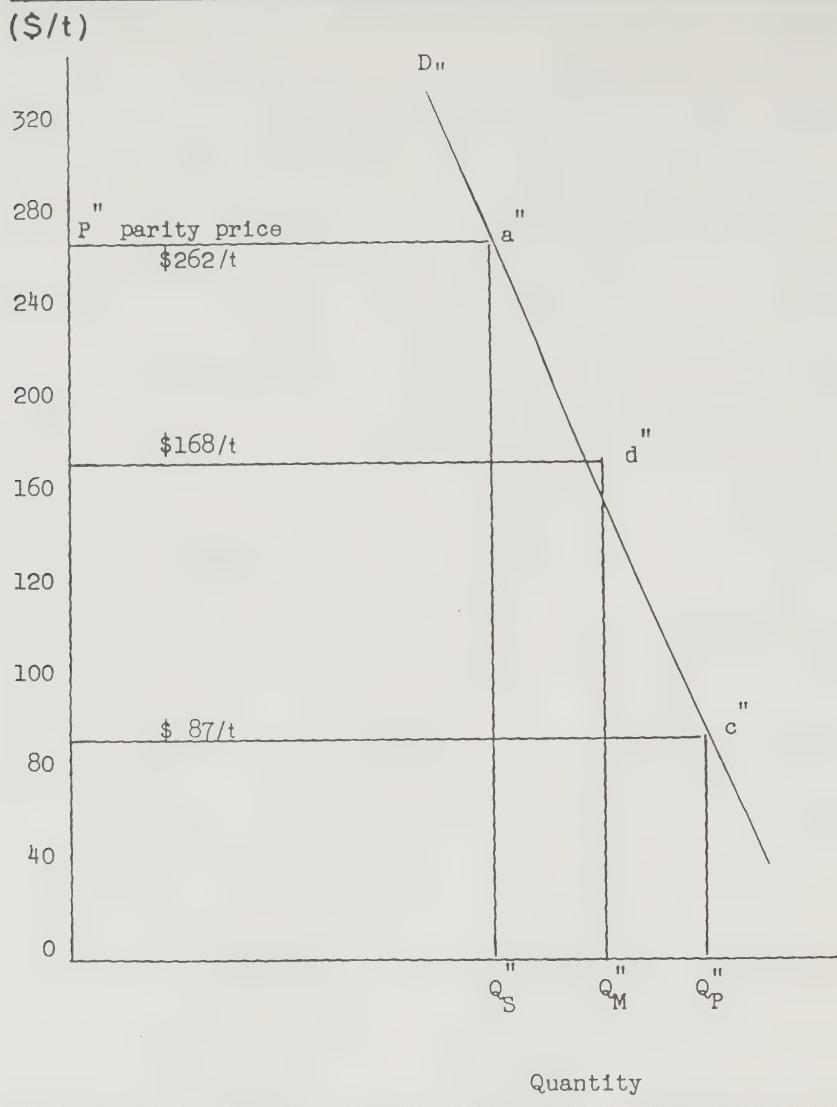


FIGURE 13.5 PARITY PRICE WITH DEMAND ENHANCEMENT

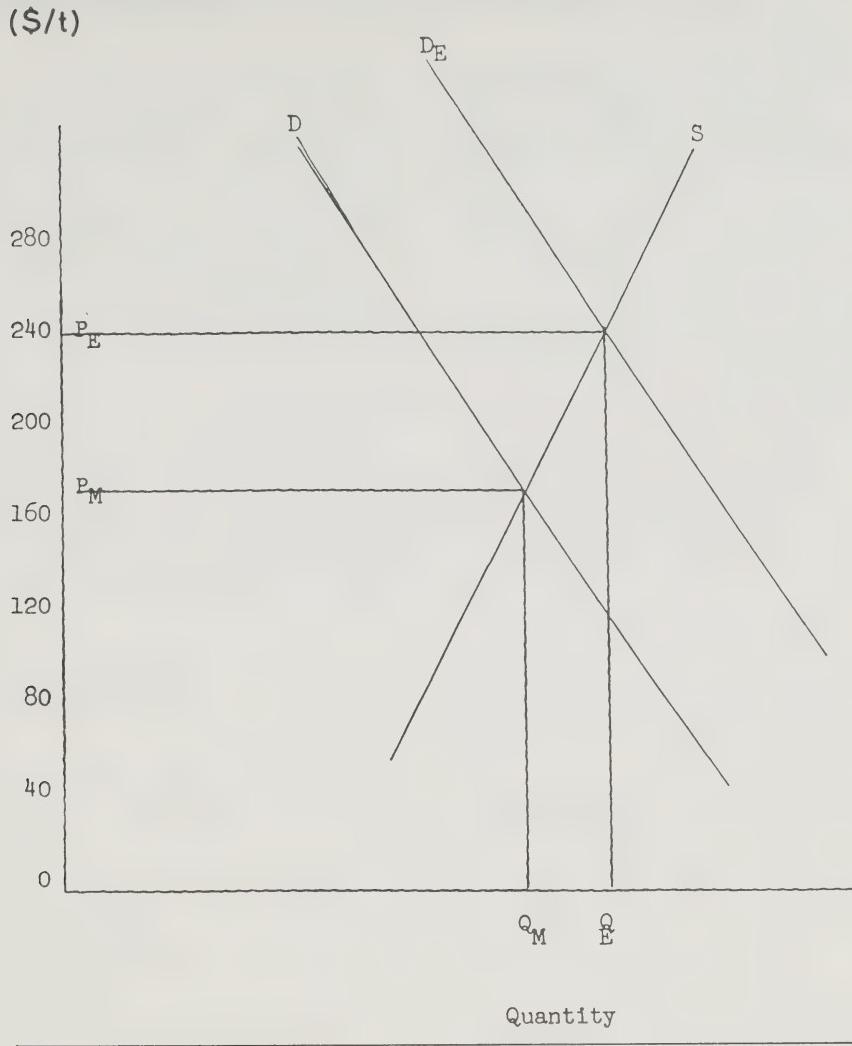


FIGURE 13.6 IMPACT OF DETERMINANTS ON PRICE SUPPORT
CALCULATION



CHAPTER 14: SUPPLY MANAGEMENT

Supply management as an instrument of agricultural policy has had a long history in Canada. Supply management has been a part of the fluid milk industry for several decades. The initial framework was set for supply management in the industrial milk sector in 1966 with the establishment of the Canadian Dairy Commission and with the introduction of the Subsidy Eligibility Quotas for all producers of industrial milk and cream in 1967-68. The final stage of the comprehensive supply management program for industrial milk was completed during the 1970-72 period.

The enactment of the Farm Products Marketing Agencies Act legislation in 1972 provided the framework for a comprehensive supply management program for eggs, chickens and turkeys.

Discussions relating to a supply management program for pork and beef occurred periodically throughout the 1970s. These discussions were frequently prolonged and invariably inconclusive.

DEFINITION OF SUPPLY MANAGEMENT

It is difficult to define supply management, as it has been applied in Canada, in any clear and concise terms. Hiscocks (1970) defines supply management in the following way:

Supply management can be defined as the centralized control over the quantity and/or price of one or more commodities of specified quality, being produced or coming from a known group of producers to a particular market in a given period.... The critical feature of supply management in the marketing context is the aspect of centralized control over a specific group of producers.

The facts are that supply management has many variations in practice. At one end of the spectrum, a group of producers organized as a marketing cooperative are practicing a form of supply management when they agree to individual production quotas along with their

negotiation for an annual price with a single buyer of their product. In the case of fluid milk, by contrast, supply management may be more comprehensive in the sense that production and marketing quotas, quality, time of delivery, handling charges and price may be set by a central agency acting under provincial law. In the latter example, regulation and control are pervasive and comprehensive.

It is well to keep in mind that the mere existence of a marketing board does not imply a comprehensive system of supply management. It is obvious, of course, that the establishment of a compulsory marketing board does imply some form of "central power or control" over a group of producers and their production and marketing practices, but this control can be of a very general nature.

Supply management may control and influence producers' production practices or their marketing practices, or both.

In the case of most hog marketing boards, producers are compelled by legislation to market through certain specified channels, and their prices are set or established in specified ways, but otherwise the producers have considerable freedom over their production and management systems.

OBJECTIVES OF SUPPLY MANAGEMENT

The objectives of supply management are many and varied.

Orderly marketing

Marketing quotas (a form of supply management) have long been used by the Canadian Wheat Board to achieve orderly marketing of grain and the pooling of prices among producers.

Development of countervailing power

Agricultural producers jointly exercising power through a centralized agency such as a marketing board (and using supply management techniques of various types) can and do exercise considerable influence over the prices which they receive from a few, large buyers (oligopsonists) in

the market place. There is little doubt that this was the primary objective of most of the hog marketing boards during the earlier stages of their development.

Prevention of vertical integration

Commodity marketing boards exercising various forms of supply management (at both the production and marketing levels) can have a powerful influence on the structure of the agricultural industry and on the commercial activities of "outside" corporate firms, in the agricultural industry. There is little doubt that one of basic objectives of supply management has been the discouragement of vertical integration and the preservation of the family farm (Menzies, 1984).

Price and income stabilization

Central management of the production and marketing of given commodities (supply management) has been used extensively during the past several decades to achieve greater price and income stabilization for agricultural producers.

Enhancement of agricultural prices and income

Supply management, particularly the comprehensive forms of supply management used in the dairy and feathered products sectors during the past 15 years, has been used to establish prices higher than those which would normally prevail under longer-run competitive market conditions.

MEANS OF ACHIEVING SUPPLY MANAGEMENT

There are two general ways in which supply management can be achieved: through control over production output; and through control over production inputs such as land, capital and floor space.

In the first case, control over output may be achieved by direct production quotas or through marketing quotas. The Canadian Wheat Board has used marketing quotas to control the supply of grain coming to the marketplace. Production quotas have been extensively used as the form of supply management in the dairy and feathered products sectors.

Control over production inputs has been the device most commonly used in the U.S. to control supply as a part of its price support program. For example, under the 1985 U.S. Food Security Act,

wheat and corn producers are eligible for target support prices if they comply with the provisions for control over area planted.

In general, the production output and the production input controls may be mandatory in nature, when they require all producers to comply with the production or marketing controls, or they can be voluntary, when producers qualify for certain benefits only if they comply with the controls.

DEMAND AND SUPPLY MANAGEMENT

In general, supply management programs in agriculture have little direct control over the nature and magnitude of the demand for food products. With the major exceptions noted below, food consumers can choose to consume or not to consume a given product; they have freedom of choice as to how they respond to price increases or price decreases; they can choose a substitute product instead of the product under control; and they have discretion over how much of their increase in income they choose to spend on food or any given food product.

Many supply management programs in agriculture fail or are ineffective or are extremely costly because the demand side of the food equation has been ignored.

In principle, supply management in agriculture can be an effective way of raising farm income providing, of course, that the product involved tends to be highly inelastic in terms of the consumer demand for the product. A product has a high price inelasticity of demand if consumers tend to reduce their consumption relatively little as a result of a proportionately large increase in price for that product or, conversely, if consumers tend to increase their demand very little when there is a relatively large drop in price of the product.

It follows, of course, that agricultural producers can use supply management (primarily through decreases or control over aggregate production) to exploit the situation where a product has a relatively high price inelasticity of demand. Studies have demonstrated that products such as eggs and fluid milk tend to be price inelastic. It is not surprising that these products have been prime candidates for supply management programs.

If, on the other hand, the supply-controlled commodity has many close substitutes, it tends to be price elastic; that is, a relatively small

increase in price leads to a proportionately greater reduction in demand or, conversely, a small decrease in price leads to a proportionately greater increase in demand. It follows, accordingly, that production control accompanied by a price increase for a given product leads to a reduction in income to the producers of that product. In this instance, supply management (production control) would tend to be counterproductive from the standpoint of agricultural producers, particularly if they export a considerable portion of a product which has a relatively high price elasticity of demand in foreign markets.

Only when a supply management program is accompanied by some type of import control over the product in question can the demand for the product be manipulated. Otherwise, supply management must adapt to the dictates of the food consumer. The "dictates" or freedom of the food consumer increase to the extent that the product tends to be price elastic. By contrast, the more price inelastic the demand for a given product, the greater the opportunity to transfer income from the consumer to the producer through a supply management program.

ADMINISTRATIVE ASPECTS OF SUPPLY MANAGEMENT

Several different approaches may be taken in the administration of a supply management program: cartel arrangements, cooperatives, vertical integration, production controls, marketing boards, Crown corporations, direct government regulations, decrees and sanctions, and public inducements to comply with a supply management program.

By far the most common administrative mechanism used in Canada for supply management programs has been the compulsory marketing board, commission or agency.

A marketing board is a body or agency set up under government legislation to administer powers and responsibilities delegated to it by government through legislation.

A marketing board has been defined by Hiscocks (1972) as follows:

A marketing board can be defined as a compulsory, horizontal marketing organization for primary and processed natural products operating under authority delegated by the government. The compulsory

feature means that all farms producing a given product in a specified region are compelled by law to adhere to the regulations of a marketing plan. The horizontal aspect means that marketing boards have influence over the output of all farms participating in the particular marketing scheme, and that they aggregate the supply from all the farms up to a chosen or permitted level. Government authority through legislation is essential to achieve the required compulsion. The power of the boards utilizing this authority is generally wide enough to affect the form, time and place of marketing and, directly or indirectly, the price. It is clear that this is a powerful and far-reaching type of marketing organization and that society takes a very significant step when it gives such powers to any group in the economy.

A marketing board may or may not include powers for a comprehensive supply management program. In Canada, the powers, control and influence of marketing boards range across a wide spectrum: at one end are the fluid milk boards which fix prices, establish marketing quotas and exercise broad regulatory powers over a number of production and marketing practices; at the other end of the spectrum are those boards which organize markets and which encourage and support a more competitive marketing system, for example, hog board teletype systems or the Ontario Fresh Fruit Board (Hiscocks, 1979).

The marketing boards and commissions exercising wide-reaching supply management powers are the Canadian Dairy Commission and the egg, chicken and turkey agencies operating under the Farm Products Marketing Agencies Act passed in 1972.

Besides marketing boards, governments can develop and extend enormous regulatory power over supply management programs in agriculture directly through existing government departments or through Crown agencies or corporations such as the Canadian Grain Commission.

Unlike the Canadian situation where comprehensive and mandatory controls are used to achieve supply management, the U.S. tends to

use public inducements and benefits of various types to encourage agricultural producers to conform with or to participate in certain types of supply management programs.

For example, under the Payment-In-Kind (PIK) program, farmers were paid through commodity payment-in-kind bonuses to reduce production. It has been a long-standing feature of U.S. farm price support programs to make certain production or area controls a condition for price support payments to participating farmers.

PRICING UNDER SUPPLY MANAGEMENT

Various techniques are used to set prices under supply management. The techniques vary according to the extent of the regulatory powers and the comprehensiveness of the production and marketing controls exercised by the regulatory or administrative agency.

Some of the regulatory agencies, such as the hog marketing boards, have attempted to make the market place more competitive through such devices as the teletype system of pricing.

Another group of marketing boards negotiates a price with a few, large buyers of agricultural products. Hiscocks (1979) notes:

The establishment of these boards has ensured that every producer receives the same basic price, that quality standards are fair and uniform, and that delivery arrangements are not arbitrary. However, the buyers generally determine volumes and, thus, if producers press for higher prices, buyers may take lower volumes. Those boards which cover more than one market outlet (i.e., fresh and processing and/or domestic and export) may have a greater opportunity to influence prices.

Where a comprehensive supply management program is involved, as for feathered products or fluid milk, various forms of administered pricing are used. In most cases, the prices set are based on cost-of-production formulas of one type or another. Generally, the legislation establishing a given supply management program specifies the way in which the prices are to be set under the program.

SUPPLY MANAGEMENT AND RESOURCE ALLOCATION DECISIONS

To the extent that a regulatory body responsible for the administration of a supply management program removes or modifies the resource allocation decisions of the competitive market system, it must assume responsibilities for those decisions. The allocation of scarce resources among multiple and competing ends or objectives must be performed, either in the marketplace or by the agency which arrogates that function.

Questions of resource use efficiency and distributional equity are fundamental questions that cannot be brushed aside under a supply management system. Administered prices and production control do affect the efficiency with which resources are used and the way in which incomes are distributed among producers and consumers in society.

Resource use allocation and efficiency under supply management programs may be examined at a number of different levels:

- How are limited resources of land, labor, capital and management allocated and used within an individual farm business?
- How are they allocated and used among competing farms within a given region or province? If there is a limited provincial production quota for a given product, which farmers are to be selected for the production of that product and what criteria are to be used in making this decision?
- How is a limited national production quota for a given product to be allocated among the regions and provinces within Canada? What criteria are to be used in making this allocation? Examples include comparative advantage, relative production costs, provincial self-sufficiency, and historical averages.
- When a supply management program is established for a given product, trade issues and international policy questions arise. Should import restrictions be imposed, and at what level? In the absence of foreign competition, what price level is to be established for the domestically produced commodity? What will be the international repercussions for Canada of the imposition of import restrictions on the supply controlled commodity?

Similarly, any supply management program generates questions of equity among farmers within a province, among provinces and between agricultural producers and food consumers. Each time a price is set or a production quota is allocated under a supply management program, there will be gainers and losers; this raises fundamental equity questions relating to redistribution of income among participants within the program. There can be no doubt about the value of a production quota to an individual farmer or to a particular province; it represents access to any benefits conferred by the quota. There is little question that a higher price for a product under a supply management program represents a transfer of income from the food consumer to the holder of the quota, or that income may be redistributed among provinces within the country.

SUPPLY MANAGEMENT AND QUOTA VALUES

To the extent that supply restrictions or production controls succeed in raising prices above those which would normally occur in the competitive market system, there is a value associated with quota.

The following example illustrates the commercial value of a production quota. Assume the following conditions:

- Annual production per hen of 20 dozen eggs;
- Laying flock of 20 000 hens;
- The use of production quotas is successful in raising egg prices 5 cents per dozen, such that the extra annual income from the laying hen is 5 cents x 20 dozen = \$1;
- Interest rate of 10% and an investment period of 10 years.

The capital value of the quota may be determined by capitalizing the extra flow of income due to the quota:

Present value of quota per hen equals:

$$(\$1.00 \div .1) \times (1 - 1 \div 1.10^{10}) = \$6.14 \text{ per hen}$$

Thus, the capital value of the quota for the 20,000 hen laying flock would amount to:

$$\$6.14 \times 20\,000 \text{ hens} = \$122\,800$$

Under a system where the quotas are freely negotiable and transferable, the \$122 800 represents a clear capital gain to the original

owner of the flock (and the quota) but it also represents a real capital cost to the succeeding purchaser of the quota.

Considerable differences of opinion exist in Canada as to whether the quotas under a supply management program should or should not be freely negotiable and transferable. In some provinces, the quotas revert to the regulating body at zero value when the original owner leaves the business.

SUPPLY MANAGEMENT AND FREEDOM OF DECISION MAKING

There is little question that freedom of decision making by the individual producer is restricted, to a greater or lesser degree, under a supply management program. The severity of the restriction depends on the nature and extent of the control and regulations exercised under the program.

Whether or not and to what extent producers are willing to trade off freedom of individual decision making for higher prices and incomes varies greatly among individual producers and commodity groups.

In general, most supply management programs are not effective unless there is some element of collective control of and compulsory compliance with the regulations associated with the programs. It is worth citing at length from a statement by Prof Cochrane (1975), who has written extensively on the subject:

This writer is inclined to doubt that farmers generally value independence of decision making in their farm operations more than they value good and stable incomes from these operations. This writer is inclined to believe that farmers generally would be willing to restrict the management decision area to realize higher and more stable incomes for that management function.... This much is clear...if farmers, generally choose the supply route, they must do more than tolerate production and marketing controls. They must come to accept production and marketing controls in the same way they do driving on the right-hand side of the road, paying their taxes, and sending their children to school.

For the supply control approach to the price income problems of commercial agriculture cannot succeed unless the overwhelming majority of commercial farmers approve and accept it. (p. 718-19)

It is worth noting that the impact of supply management on freedom of decision making is not confined to participants in the program only. For many commodities, it is not possible to include all potential producers under the program; the quota may be restricted to a limited number of farmers. Accordingly, entry to the quota-controlled product is restricted and potential producers cannot engage in the commercial production and marketing of the product unless they have a licence to do so. Even where quotas are freely negotiable and transferable, potential producers may have to invest considerable amounts of initial capital in the quotas in order to gain access to the industry.

REGIONAL IMPLICATIONS OF SUPPLY MANAGEMENT

In looking at possibilities for further expansion in the national market, several major factors need to be considered: location of future population increases in Canada; regional comparative advantage in the production of various commodities; obstacles to interregional trade; and provincial and national agricultural policies.

From an agricultural production standpoint, nearly 55% of Canada's farmers and 85% of the nation's improved farmland are located in the four western provinces. From a land base point of view, there can be little doubt about the capacity for further expansion of production in western Canada.

On the other hand, by far the largest proportion of the national food market is located in Quebec and Ontario. In 1983, approximately 62% of the food consumers were located in those two central provinces, compared with only 29% in western Canada. What is even more striking, six of the largest urban centers in Ontario and Quebec had a population of 8 million people, almost one third of Canada's total population and almost twice that of the total population of the Prairies. Expressed another way, Montreal and Toronto in 1983 had more population than the three Prairie provinces combined.

The economic and political implications of this skewed regional distribution of production and

consumption of food in Canada are very significant from the standpoint of policies relating to such areas as transportation, marketing boards and supply management programs.

There is little doubt from a national point of view that agriculture occupies a relatively more important position in the Prairie economy than in the other provinces, with the exception of P.E.I. From the standpoint of farm production alone (not counting the contributions of the agricultural supply and processing sectors), the proportion of the provincial gross domestic product derived from agriculture in 1982 amounted to 7.8% in Manitoba, 16.2% in Saskatchewan and 5.0% in Alberta, compared with only 1.6% in Quebec and 2.1% in Ontario. It is obvious why western provincial premiers and agricultural ministers place such importance on agriculture in any overall economic development strategy.

In terms of the products handled under national supply management programs (milk, eggs, chickens and turkeys), it is interesting to note that the bulk of the national quotas are located in the two central provinces. Nearly 79% of the national industrial milk quota is located in Quebec and Ontario and only 18% of the quota is located in the four western provinces. Ontario and Quebec control nearly 55% of the national egg quota, 66% of the national chicken quota and nearly 68% of the national turkey production quota.

It is interesting to note how little these quota shares of the respective provinces have changed over the years. For example, between 1970 and 1983 the share of the national quota for industrial milk going to Quebec and Ontario moved from 78.71% to 79.21% over the 13-year period. In the case of the national egg production quota, the share going to Ontario and Quebec moved from 54.72% to 55.30% during the 1973-83 period. It is obvious that any change in the initial quota allocation for commodities under the supply management programs will be difficult to achieve, regardless of changing circumstances among the various provinces.

In terms of the products not under the supply management programs, note that Ontario and Quebec derived nearly 68% of the national farm cash receipts from hogs and approximately 40% of the national farm cash receipts from cattle and calves. Of the 35 912 persons employed in the meat packing and processing industry in Canada in 1980, nearly 63% (22 539 persons) were employed in the two central provinces.

Only in crop production did the Prairie provinces excel. In 1981, approximately 71% (\$6.4 billion) of the national farm cash receipts from crops (total of \$9.0 billion) went to producers in the three Prairie provinces.

INTERNATIONAL ASPECTS OF SUPPLY MANAGEMENT

Any supply management program in Canada has implications under the basic provisions of the General Agreement on Tariffs and Trade. Article XI of the GATT makes provisions for supply management programs within a framework of certain conditions and limitations.

Paragraph 1 of Article XI establishes a general ban on restrictive measures "other than duties, taxes or other charges" on imports and exports.

Paragraph 2 then goes on to specify the exceptions to this general ban. It is in this section that specific exceptions are made for agriculture under the GATT. However, these exceptions are bound by certain conditions and limitations. Paragraph 2 (c) sets out the very complex requirements which must be met if restrictions such as supply management programs are to be acceptable:

- (c) Import restrictions on any agricultural or fisheries product, imported in any form, necessary to the enforcement of governmental measures which operate:
 - (i) to restrict the quantities of the like domestic product permitted to be marketed or produced, or, if there is no substantial domestic production of the like product, of a domestic product for which the imported product can be directly substituted; or
 - (ii) to remove a temporary surplus of the like domestic product, or, if there is no substantial domestic production of the like product, of a domestic product for which the imported product can be directly substituted, by making the surplus available to certain groups of domestic

consumers free of charge or at prices below the current market level; or

- (iii) to restrict the quantities permitted to be produced of any animal product the production of which is directly dependent, wholly or mainly, on the imported commodity, if the domestic production of that commodity is relatively negligible.

Article XI goes on to say:

Any contracting party applying restrictions on the importation of any product pursuant to sub-paragraph (c) of this paragraph shall give public notice of the total quantity or value of the product permitted to be imported during a specified future period and of any change in such quantity or value. Moreover, any restrictions applied under (i) above shall not be such as will reduce the total of imports relative to the total of domestic production, as compared with the proportion which might reasonably be expected to rule between the two in the absence of restrictions. In determining this proportion, the contracting party shall pay due regard to the proportion prevailing during a previous representative period and to any special factors which may have affected or may be affecting the trade in the product concerned. (GATT, 1979b, pp. 17-18)

As the word "necessary" implies in Article XI, there must be a clear justification for the restriction of imports. In addition, Article XI specifies that there must be public notice of import quotas and, further, that a certain proportion must be maintained between import levels and domestic production.

In its supply management programs Canada has attempted to comply with the requirements of Article XI of the GATT. Since 1970 Canada has applied import controls on dairy products to

support the Canadian supply management program for manufacturing milk and it has notified the GATT accordingly.

Canada also notified the GATT concerning the supply management programs operating for egg and chickens. The notification indicated that Canada has implemented these programs in compliance with the provisions of Article XI 2(c) of the GATT.

In 1976, a GATT working party was established to make an advisory ruling on the consistency of Canada's import quotas on eggs with Article XI:

The members of the Working Party, with the exception of the United States, agreed that the Canadian supply management programme for

eggs conformed with Article XI 2(c)(i). The Working Party, however, was unable to decide whether the representative period chosen by Canada in determining the quotas was in conformity with the last paragraph of Article XI 2. (GATT, 1982, p. 23)

As a matter of interest, the data in Table 14.6 indicate the imports and exports established relative to the total national quota set for eggs in 1973 under the Egg Supply Management Program.

The imports and exports were based on the proportion of these two respective items relative to total national production during the five years previous to the commencement of the Egg Supply Management Program.

TABLE 14.1 PROVINCIAL ALLOCATIONS OF INDUSTRIAL MILK QUOTA, CANADA, 1970 AND 1983

	Industrial milk December 31, 1970		Industrial milk August 1, 1983	
	Butterfat (million pounds)	Share of total (%)	Butterfat (Mkg)	Share of total (%)
British Columbia	11.5	2.62	5.302	3.09
Alberta	34.1	7.76	11.792	6.88
Saskatchewan	14.7	3.35	4.755	2.77
Manitoba	18.1	4.12	6.695	3.90
Ontario	148.8	33.89	53.461	31.19
Quebec	196.8	44.82	82.302	48.02
New Brunswick	4.5	1.02	2.262	1.32
Nova Scotia	4.1	0.93	2.164	1.26
Prince Edward Island	6.5	1.48	3.246	1.89
Newfoundland	0	-	0	-
Total	439.1	100.00	171.977	100.00

TABLE 14.2 EXPORT OF INDUSTRIAL MILK, CANADA, 1970 AND 1982-83

Product	1970	1982-83
	(Mkg)	(Mkg)
Powder	134.8	123.00
Butter	-	3.68
Evaporated milk	-	2.42
Whole milk	-	0.59

TABLE 14.3 PROVINCIAL ALLOCATIONS OF NATIONAL EGG QUOTA, 1973 AND 1983

	1973		1983	
	Quantity	Share of total	Quantity	Share of total
	(million dozen)	(%)	(million layers)	(%)
British Columbia	57.250	12.05	2.561	12.48
Alberta	41.344	8.70	1.575	7.67
Saskatchewan	22.611	4.76	0.734	3.58
Manitoba	54.189	11.41	2.419	11.79
Ontario	181.267	38.16	7.967	38.82
Quebec	78.647	16.56	3.381	16.48
New Brunswick	8.683	1.83	0.419	2.04
Nova Scotia	19.504	4.11	0.877	4.27
Prince Edward Island	3.028	0.64	0.142	0.69
Newfoundland	8.477	1.78	0.443	2.15
Total	475.000	100.00	20.518	100.00
Imports (dozen)	957 780		7 245 750 (1982)	
Exports (dozen)	11 571 000		3 770 130 (1982)	

TABLE 14.4 PROVINCIAL ALLOCATIONS OF NATIONAL CHICKEN QUOTA, 1979 AND 1983

	1979		1983	
	Eviscerated weight	Share of total	Eviscerated weight	Share of total
	(Mkg)	(%)	(Mkg)	(%)
British Columbia	41.277	10.72	38.638	10.28
Alberta	33.113	8.60	35.381	9.42
Saskatchewan	7.788	2.02	9.593	2.55
Manitoba	15.649	4.06	14.864	3.96
Ontario	133.358	34.65	126.987	33.79
Quebec	125.646	32.64	120.990	32.20
New Brunswick	9.843	2.56	10.297	2.74
Nova Scotia	13.608	3.54	13.815	3.68
Prince Edward Island	0.533	-	0.862	0.23
Newfoundland	4.082	1.06	4.342	1.16
Total	384.897	100.00	375.769	100.00
Imports	26.376		26.975 (1982)	
Exports	0.166		1.000 (1982)	

TABLE 14.5 PROVINCIAL ALLOCATION OF NATIONAL TURKEY QUOTA, 1973 AND 1983

	1973		1983	
	Eviscerated weight (million pounds)	Share of total (%)	Eviscerated weight (million pounds)	Share of total (%)
British Columbia	21.934	10.12	19.302	9.37
Alberta	18.759	8.65	17.144	8.32
Saskatchewan	8.220	3.79	8.171	3.97
Manitoba	17.155	7.91	16.385	7.95
Ontario	87.542	40.38	90.592	43.98
Quebec	59.882	27.62	48.823	23.70
New Brunswick	1.209	0.56	2.181	1.06
Nova Scotia	2.095	0.97	3.402	1.65
Prince Edward Island	0.005	-	0	
Newfoundland	0	-	0	
Total	216.801	100.00	206.000	100.00
Imports	7.861		3.073 (1982)	
Exports	0.848		0.346 (1982)	

TABLE 14.6 DISTRIBUTION OF TOTAL FARM CASH RECEIPTS FROM HOGS, BY PROVINCE, CENSUS YEARS, 1961-81

	1961	1966	1971	1976	1981
	(%)				
Prince Edward Island	1.3	1.7	1.5	1.4	1.4
Nova Scotia	1.0	1.2	1.5	1.4	1.7
New Brunswick	1.0	0.7	1.0	0.7	0.8
Quebec	20.6	22.1	20.0	29.2	35.4
Ontario	36.0	38.9	30.2	35.9	32.3
Manitoba	7.4	8.4	12.8	9.6	8.5
Saskatchewan	8.7	7.2	11.8	6.6	4.9
Alberta	23.2	19.0	19.8	13.5	12.0
British Columbia	0.7	0.7	1.2	1.3	2.7
CANADA	100.0	100.0	100.0	100.0	100.0

TABLE 14.7 IMPORTS AND EXPORTS UNDER EGG SUPPLY MANAGEMENT

	Quantity
Total national quota (dozen)	475 000 000
Imports (dozen)	957 780
Exports (dozen)	11 571 000

CHAPTER 15: THE CONSTITUTIONAL AND ECONOMIC CASE FOR A COMMON AGRICULTURAL MARKET IN CANADA

Agricultural policy making in Canada is complicated by the fact that two levels of government are generally involved in the policy process. This is the fundamental reality of the Canadian federal system. The distinguishing characteristic of a federal system of governance is "the constitutional distribution of legislative powers between national and state or provincial governments" (Smiley, 1980, p. 19).

It is inherent in the federal system of governance that a considerable part of the policy and decision making process should be devoted to questions and issues relating to the division of law-making powers between the central and provincial governments.

Few other spheres of economic activity in Canada have raised as many constitutional questions as agricultural marketing legislation. In their battle for better prices and incomes and for greater control over the marketing of their products, Canadian agricultural producers have experimented with a wide variety of marketing policies and institutions. Most of these approaches have called for some form of government involvement or legislative action.

To the extent that both federal and provincial governments have been involved in agricultural marketing legislation, the constitutional questions and issues have increased in complexity and dimension.

While the Canadian Constitution does provide basic principles and guidelines relating to the respective jurisdictional powers and responsibilities of the federal and provincial governments, these principles and guidelines have not provided an unambiguous dividing line between the two levels of government insofar as agricultural marketing legislation is concerned. This ambiguity has led to some serious and fundamental conflicts, not only between the two levels of government, but also among the respective provincial jurisdictions. Some of these conflicts have been resolved in the political arena. Many other questions and conflicts have been referred to the courts for resolution.

Two major forces underlie the issues which have emerged around the division of legislative

powers between the two levels of government: the centripetal forces of the central government, and the centrifugal forces of the provincial governments. The central government sees itself responsible for national policy matters, inter-regional and interprovincial trade and commerce, and policy matters relating to the international arena. Accordingly and not surprisingly, the central government tends to pull toward the center all those powers and responsibilities it deems to be in the national interest.

At the same time, the centrifugal forces of regionalism are represented by the provinces, which are preoccupied with local issues and concerns.

One can see evidence of the centripetal and centrifugal forces at work in many of the current agricultural policy issues in Canada: feed freight assistance for feedgrains, the Tripartite Red Meat Stabilization Program, and agricultural supply management programs, to cite only three examples.

There is growing evidence that the common agricultural market has become a "splintered market" in Canada (Haack, Hughes and Shapiro, 1981; Canada West Foundation, 1985; Flatters and Lipsey, 1983). Provinces have developed their own price, income, credit and trade policies because of what they allege to be serious limitations, insensitivities and failures in federal policies. This proliferation of provincial policies and programs for agriculture has led, in turn, to interprovincial trade barriers and to costly, competing and ultimately self-defeating provincial subsidies. To date, at least, the federal government appears to lack the capacity (political and fiscal capacity) to preserve or to redevelop a common agricultural market in Canada.

Whether the directions taken by the Canadian hog industry during the next few years will lead toward a splintered market or toward a common agricultural market in Canada remains to be seen, but it is important to understand the constitutional and general economic framework within which these vital policy decisions will be made.

THE CONSTITUTIONAL FRAMEWORK FOR POLICY MAKING

While many sections of the Canadian Constitution have significance for agricultural policy, four sections of the Constitution may be singled out for special attention: sections 91, 92, 95 and 121 (Smiley, 1980; Safarian, 1974; Simeon, 1985).

Section 91 of the act sets out the general powers and responsibilities of Parliament. Two aspects of this section, the preamble relating to "Peace Order and Good Government" and subsection 91.2 relating to the "Regulation of Trade and Commerce" are particularly important from the standpoint of agricultural policy.

The first clause "Peace, Order and Good Government" provides the federal government with residuary power which can and has been used by the federal government in "order to regulate and maintain the Canadian Common Market" (Safarian, 1974, p. 23).

Section 91.2 provides the federal government with the authority to regulate trade and commerce among the provinces; that is, interprovincial trade in agricultural products, not intra-provincial trade. Safarian (1974) notes:

It was...recognized that the Parliament of Canada has legislative authority to enact schemes regulating interprovincial and international trade even though they may have an effect on trade in a purely intra-provincial sense.
(p. 24)

The courts have found in several cases that a province may not regulate in such a way that it creates a barrier to the interprovincial movement of goods.

Section 92 of the Constitutional Act, 1982, lists those matters where the provincial legislatures may exclusively make laws. Particular subsections of section 92 have been of importance in the agricultural marketing field, namely section 92.2 relating to direct taxation and section 92.13 relating to "Property and Civil Rights."

One of the more important cases brought before the courts involved the Natural Products Marketing Act passed by the federal government in 1934. A challenge was brought before the courts declaring that the act *ultra vires* of the

Constitution; that is, that the federal act transgressed on provincial jurisdiction and thus was invalid.

The act was ultimately judged to be *ultra vires* of the Constitution in a decision by the Privy Council of Great Britain in July 1938. It is worth citing an observation by Lord Atkin ((1983) 4 D.L.R. 84) at that time:

It is now well settled that the enumeration in section 91, of "The Regulation of Trade and Commerce" as a class of subject over which the Dominion has exclusive legislative powers does not give the power to regulate for legitimate provincial purposes particular trades or businesses so far as the trade or business is confined to the Province...and it follows that to the extent that the Dominion is forbidden to regulate within the Province, the Province itself has the right under its legislative powers over property and civil rights within the Province.

Section 95 of the act is important in the sense that both Parliament and the provincial legislatures may make laws with respect to agriculture, with the provision that the power of Parliament is to be paramount in the event of a conflict between the two levels of government.

Another section of the Constitutional Act which is particularly important from the standpoint of agricultural marketing legislation in Canada is section 121, which, in effect, prohibits barriers to trade being set up at provincial boundaries. In a statement on the Manitoba "egg marketing scheme" brought before the court in 1971, the late Chief Justice Bora Laskin (A.G. Manitoba v. Manitoba Egg and Poultry Association (1971) S.C.R. 689, 717) made the following observation about section 121:

The Manitoba scheme cannot be considered in isolation from similar schemes in other provinces; and to permit each province to seek its own advantage, so to speak, through a figurative sealing of its borders to entry of goods from others would be to deny one of the objects of Confederation, evidenced by the

catalogue of federal powers and by section 121; namely, to form an economic unit of the whole of Canada.

While the spirit of section 121 reflects the objective of a common market, Safarian (1974, p. 20) observes that section 121 constitutionally "establishes a customs union rather than the more integrated and largely *de facto*, common market for Canada." In other words, the constitutional guarantee of a common market is incomplete in the sense that it prohibits interprovincial customs and other explicit border taxes but it makes no explicit reference to the free mobility of products, services, capital or people.

While the basic assumption behind the Constitutional Act, as it was originally formulated, was that the two levels of government could operate for the most part independently of one another, the current reality is that the relationships between the central and provincial governments have become highly interdependent. Furthermore, through the use of "spending power" and other devices and policies, the assumption of "independence" has been largely circumvented (Simeon, 1985, pp. 71-123).

It is clear that many agricultural policies in the future will depend on a political reconciliation of differences between the federal and provincial governments, if a reasonably constructive and harmonious relationship is to exist.

To the extent that the two levels of government are unable to achieve a "reasonably constructive and harmonious relationship" on agricultural policy matters, one can anticipate a further disintegration of the common agricultural market in Canada. It would be ironic, indeed, if the disintegration of the Canadian common agricultural market were to occur at the very time that the common market in Europe was reaching fruition. It is worth keeping in mind what one observer (De La Mahotière, 1961) of the European common market said about the EEC in 1961:

The Common Market is a unique and noble attempt by dedicated men to build a new Europe, not as Charlemagne or Napoleon had done, by force of arms, but by free negotiation between sovereign nations which had been all but destroyed in the holocaust of the Second World War. (p. ix)

THE ECONOMIC CASE FOR A COMMON MARKET

We start this discussion with the central proposition that free trade among the provinces maximizes the gross national product of the country as a whole. The justification for this proposition is based on a set of principles similar to those used in support of the argument for free trade among nations (Flatters and Lipsey, 1983):

Ever since Adam Smith and David Ricardo, it has been known that much of today's high living standards is due to the gains from trade. Each country's GNP is higher if it concentrates on producing the things it can produce at least cost, exporting these for imports of other goods, than if it tries to produce a wide range of goods under tariff protection. It has also been clear that, relative to its GNP, the gains from international trade are larger for small countries such as Canada or Australia than for large countries such as the United States or the USSR. (p. 24)

Flatters and Lipsey (1983) note that the losses incurred by the country as a result of interprovincial trade barriers may even be larger than those which result from tariff protection against international free trade:

If Canada is small by international standards, each of its ten provinces is, on average, an order of magnitude smaller. Thus, if each produced the equivalent interference to inter-provincial trade as does the national tariff to international trade, this might reduce Canadian GNP by more than does the national tariff. (p. 25)

The importance of the central proposition relating to free trade, whether among countries or among regions (provinces) within a country, cannot be lightly brushed aside in agricultural policy discussions.

No region or province in Canada can be equally efficient in the production of all agricultural products. Any given region or province achieves a higher standard of living and greater

production efficiency if its farmers specialize in the production of those commodities in which they are comparatively most efficient (have the greatest comparative advantage) and if they, in turn, trade those products for goods in which they have a comparative disadvantage. This system can only work, however, if there are no impediments placed in the way of the trade flows among the provinces. Of course, specialization and trade, creates greater interdependence among the various regions of the country, but this is the essence of a system based on comparative advantage, specialization and trade.

While the actual situation in Canada hardly reflects the central proposition we have discussed, this does not mean that the proposition has no validity. The "splintered society" has a real cost in terms of reduced production efficiency and international competitiveness, and in terms of a lower living standard for the nation as a whole.

During the past 25 years, both federal and provincial governments have generated a whole array of policies and programs in the Canadian agricultural industry which have produced results that are widely divergent from those which would prevail under specialization, comparative advantage and free trade within a common agricultural market. These policies and

programs include freight subsidies, truck licencing regulations, marketing boards, supply management programs, provincial and federal regional development grants and incentives, federal and provincial procurement programs, packaging and labeling (Haack, Hughes and Shapiro, 1981).

We do not suggest that government intervention in the Canadian agricultural industry should be guided exclusively by the economic criteria discussed above. Of course, there are many reasons why both provincial and federal governments have decided to intervene in the working of Canada's economic system. We only urge that the "opportunity cost" of such policies be carefully considered before government commits itself to programs that have a fundamental and pervasive influence on farmers, consumers and various regions of the country.

If the ultimate outcome of these policies and programs means the disintegration of a common agricultural market in Canada, is this the long-run price that Canadian farmers are willing to pay? Are there not other policy alternatives which farmers can support to achieve their goals, rather than the policies which lead to interprovincial trade barriers and a splintered agricultural industry?

Part IV

Evaluation of Policy Alternatives

The last decade has been a hectic one for the Canadian hog/pork industry. Expansion of national production, along with changing market conditions both on the national and the international markets, have created an unusual marketing environment. It has been one within which all the participants and all the sectoral policies and programs having an impact on the sector have been put to very serious tests.

This research is basically an attempt to integrate the most relevant data and some research capacity into a policy exploration process. Constant interaction with two of the major participants, namely the hog producers and the policy makers, is also an important aspect of this research mandate. So is the necessity of analyzing relevant issues in a forward as well as in a backward perspective. But exploring the future is perhaps much more strategically important than looking at the past. Nonetheless we believe that much can be learned by comparing what might have happened if the industry had chosen to follow different paths 10 years ago. The next four chapters, under the heading "The Historical Perspective, 1975-85," are therefore devoted to presenting a brief flashback on the last decade and what it might have been like under different sets of hog/pork policies. Then the following five chapters, under the heading "The Future Perspective, 1986-91" are devoted to exploring some of the impact of specific policy scenarios in the years ahead.

THE HISTORICAL PERSPECTIVE, 1975-85

CHAPTER 16: BACKGROUND METHODOLOGY

The somewhat parallel ideas of sector research and that of using formal mathematically calculated sets of relationships under the so-called "model" approach have given rise, in the late 1960s, to the first major formalized hog/pork subsector study in the U.S. (Candler and Manchester, 1974).

In Canada, the Food and Agricultural Regional Model (FARM) of Agriculture Canada has been developed throughout the late 1970s and the 1980s to analyze various kinds of so-called sectoral problems, including stabilization issues (Gilmour and Cluff, 1986a). Its capacity to analyze issues relating to the hog/pork industry and to incorporate them within the larger modeling framework of the red meat sector has already been submitted to scientific investigation (Roy, 1986).¹ We may quote from one such scientific report (Gilmour and Cluff, 1986a) to emphasize the fact the model as a tool is only a part of the policy analysis process:

Models are tools, and it is important to understand their limitations and the areas in which they can be improved and amended to address the theoretical and practical issues which arise. (p. 16)

For the purposes of this study the latest version (1985) of the FARM model, which deals with the Canadian hog/pork industry, is amended to fit the needs of the Canadian Pork Council group study. The main modifications made had to do with the introduction of mathematical functions and/or linkages which included all past and/or present hog stabilization programs from coast to coast. The tool used in the present study is therefore an amended version of a previously designed and tested model.

The original group study proposal envisioned a comprehensive list of issues which had to be molded into the type of coherent and organized sets of questions which can be fed into such a modeling analysis. Usually this process of going from original research proposals to final ones involves a major effort of scaling down the

number of alternative sets of policy questions (or so-called scenarios) retained (Candler and Manchester, 1974). Fortunately this was not necessary in the present study. Most of the original issues to be studied, with the exception perhaps of those concerning the extent to which promotion (merchandising) of specific pork commodities by producers groups in Canada might contribute to shift relevant demand curves to desirable levels, proved to be amenable to the comparative analysis exercise with the amended FARM model.

THE STRAITJACKET OF MODELING ASSUMPTIONS

While the FARM model has the advantage that all relevant issues can be analyzed within the same framework, it involves at the same time a long list of detailed assumptions associated with each of the policy options being studied.

It is to be emphasized that if empirical models such as the one retained for this study are to be used more intensively in policy analysis, the integrity of their theoretical foundations must be closely scrutinized (Saint-Louis, 1974; Gilmour and Cluff, 1986a). Therefore, in trying not to become overawed with the process of econometric modeling to the extent that we might be tempted to substitute the model-building process itself for a basic understanding of how markets are organized and how they function, we have found it necessary to do two things. Firstly, we have devoted considerable attention in the first part of this study to carefully describing the industry as it stands now. Secondly, we have specified in close cooperations with the modeling analysts involved the simulation assumptions under which each scenario was to be calculated. This proved to involve a long list of conditions, which are extremely important for the right interpretation of the comparative impacts of each policy scenario. This list of conditions can be found in Appendix N.

Finally, there is the theoretical state-of-the-art question. This issue does not basically belong in the present type of study but it cannot be entirely

brushed away. It should be noted that this whole exercise of answering "what if" questions by modeling tools is answer-specific because it is also question-specific. For this reason one cannot extrapolate the specific results of the present study to more general conditions and circumstances in an attempt to evaluate correctly the implications of all Canadian hog stabilization initiatives and their net effects for the welfare of American pork producers. It has already been indicated that other amendments to the FARM model would need to be made, if one were interested in knowing how stabilization really impinges on hog production decisions at the individual farm level (Gilmour and Cluff, 1986b).

BY WAY OF SUMMARY

One of the more common problems associated with modeling for policy making in any economic sector is the difficulty of developing a clear definition of user needs that are understood and

are agreed to by the model-building group. Frequently, there appears to be too little interaction between these two groups during the initial designing periods of the model (House and McLeod, 1977, pp. 6-15).

It is often assumed by the research advisers and the model-building group that the users of the results fully understand the analytical techniques used. However, this is frequently not the case with the result that much time and effort are spent in educating the users and policy makers as to what is appropriate for them.

It is not surprising then that the potential users of these models often feel alienated from the modelers and that the resulting products are not really tailored to the policy-making group's needs.

In the present study, a special effort is made to ensure that the needs concerns and objectives of the hog producers are closely integrated with the capabilities strengths and limitations of the FARM model.

CHAPTER 17: THE STATUS QUO

In the following analysis of alternative marketing policies for the Canadian hog industry, a major reference point used for the analysis is the status quo, or existing state of affairs in the industry.

Several aspects of each alternative policy are measured against or compared with average or annual data or profiles of the situation which actually existed between 1975 and 1985. In other words, departures from the existing situation are used to measure the impact of alternative policies on the Canadian hog industry.

In some cases, departures from the status quo or basic reference point are of an incremental nature and hence do not have a major impact on the industry results. In other instances, however, the departures from the status quo or existing situation are major and would have caused significant and basic changes in the Canadian hog industry. Many of the alternative policies would have had a major impact on regional distribution of production, the location of slaughtering and processing plants, existing government programs and patterns of international trade in hog and pork products.

Chapters 2 to 9 include a general description and analysis of the state of affairs which existed in the Canadian hog industry during the period 1975 to 1985. The evolution of changing government policies and programs and the impact of these policies on farm structure, on location of slaughtering and processing plants, on regional distribution of production, and on interprovincial flows of hog and pork products and international trade are traced through to the end of 1985.

The end results of this evolution represent the base period or departure point for the examination of the impact of alternative policies on the hog industry.

In the first situation, the historical perspective 1975-85, an analysis is made of the consequences which would have resulted had the following policies been adopted during the 1975-85 base period:

- No intervention in the marketplace; that is, the elimination of all government programs and impediments to trade with the U.S. The results of this analysis are outlined in Chapter 18.

- The application of supply management in the hog industry. Various supply management options are tested for their probable effects on the hog industry during the 1975-85 period. The results of this analysis are included in Chapter 19.

No attempt is made here to provide a comprehensive summary of the discussion and analyses included in Chapters 2 to 9. We simply note those aspects of the status quo or base period which are important in the analysis of the alternative policies.

There can be no doubt that the great variety of federal and provincial programs which evolved during the 1975-85 period had an enormous influence on the production, slaughtering and processing, regional distribution, pricing and international trade of hog and pork products in Canada. Some of these policies were designed to preserve the "common market" in Canada and to encourage expansion of trade with other countries. Other policies and programs had the effect of weakening the Canadian common market and of creating difficulties and eventual conflicts in the international trade arena. All of the programs during 1975-85 had a significant effect on the stabilization of prices and incomes in the Canadian hog industry.

Prior to the base period and certainly during the 1975-85 period, a great variety of provincial pricing mechanisms were established within the industry. The long history associated with the evolution of the pricing mechanisms within the province of Ontario had a tremendous influence on the hog industry, not only in Ontario, but also in several other provinces where variations of the Ontario pricing plan were adopted.

There can be little question about the significance of the structural changes which occurred in the province of Quebec during the 1975-85 period. It was during this period that various forms of vertical integration and contracting were established, and that a major expansion of the hog industry occurred in Quebec.

On the trade front, some significant changes also occurred. During the years 1974-78, it is to be noted that Canada was a large net importer of pork products from the U.S. Conversely, during the years 1979-85, Canada was a large net exporter of hogs and pork products to the U.S.

It was also during this period that several of the hog marketing boards had negotiated large pork export contracts with Japan. All three Prairie hog marketing boards had negotiated such contracts with Japan. The Ontario Pork Producers' Marketing Board also negotiated a number of long-term and several mini (of several weeks' duration) export contracts with Japan. During the 1975-78 period, more than two thirds of Canada's pork exports went to the Japanese market.

The 1975-85 base period concluded with a major trade conflict with the U.S. over the Canadian export of hogs and pork products to that country. The central issue in this conflict involved a charge by American pork producers that subsidized Canadian hog/pork exports to the U.S. caused material and continuing injury to the American hog industry. The remedy requested by the American hog producers was a countervailing duty on Canadian hog/pork exports to the U.S., equivalent to the domestic subsidies paid on those products. On March 27, 1985, a preliminary

countervailing duty of 5.3 cents per pound was imposed on dressed weight pork and 3.8 cents per pound was applied to live hogs. In the final determination on July 25, 1985, the countervailing duty was only applied to live hogs at the rate of U.S. \$3.21/cwt.

The analysis in Chapters 18 and 19 attempts to assess the implications that would have resulted for the Canadian hog industry had other quite different marketing policies been adopted. What would have been the impact on prices, incomes, regional location of production and trade if all the existing federal and provincial programs, including the U.S. countervailing duties, had been eliminated and replaced instead with a nonintervention system, or with a comprehensive supply management program? Does the analysis which follows provide some useful guidelines for future policies?

These types of questions are basic to the discussion and analysis which follows in Chapters 18 and 19.

CHAPTER 18: NO INTERVENTION IN THE MARKETPLACE

What would it have been like to compete on the North American market without the safety nets of domestic stabilization programs and also without the barriers of U.S. countervailing duties (CVDS) on Canadian exports during the 1975-85 period? This was the basic question confronted in this particular FARM modeling exercise.

The purpose of this chapter is to provide simulation results for this scenario, which is called no intervention in the marketplace. In this scenario it is assumed that internal hog/pork policies which have prevailed in Canada during the 1975-85 period and the CVD on Canadian hogs would be eliminated. It is also assumed that U.S. policies would not have changed as a result of the change in Canadian policies.

The main assumptions underlying this scenario can be found in Appendix N under no intervention (NOSTA 1.1). The essence of those assumptions is that there were no stabilization payments and that the CVDS on hogs and pork commodities were eliminated.

It must be noted that for this analysis, it is assumed that stabilization payments minus premiums paid to farmers are considered to have an identical response as prices received in the market. In addition, the impact of stabilization payments on levels of production is assumed to influence hog farmers' decisions during the applicable insurance coverage subperiod, rather than during the subperiods in which they are announced and/or actually paid to farmers.

A FLASHBACK ON IMPACTS OF FREE TRADE IN THE CONTINENTAL HOG/PORK INDUSTRY

The no intervention option is therefore modeled and compared with the actual situation prevailing for the 1975-85 period, which is the status quo.

Given the assumptions retained for Canada as a whole, production and marketings of hogs would have been slightly lower relative to the status quo but only between 1980 and 1985 (Figure 18.1). However, levels of domestic production and marketings which are calculated under such conditions for this specific 1980-85 subperiod would not have been lower in each province and/or region by equal proportions (Table 18.1). As a matter of fact, western Canada might then have produced 4.9% less of what actually

prevailed, whereas eastern Canada producers might have fed about 2.8% fewer hogs than they did with the safety net of stabilization programs and despite U.S. imposed barriers to trade.

Other results shown by this retrospective scenario do not differ significantly from what really happened between early 1975 and the third quarter of 1989. The reasons why it is so are perhaps self-explanatory. Firstly, there were no U.S. CVDS on Canadian exports for the 1974-84. Secondly, the 1975 revised ASA, which reflected a change in the original formula where the support price was set equal to 90% of the previous five-year average price, was adjusted by the difference between current measured cash costs and its previous five-year average. This revised formula was to be more sensitive to economic conditions and, while it did provide very little ASA payments for slaughter hogs during the 1975-79 period, the revised ASA did not have any significant impact on other characteristics of the industry either. In fact, except for a small payment in the fourth quarter of 1978 in the Atlantic provinces, no stabilization payments were given in Canada until 1979, since there was a one-year lag in production. That is why the simulated production shows declines only for 1980 and after.

But the 1980-84 time and institutional frame is indeed a crucial one for making this kind of with-without restrained market comparison, because the present economic mold for the entire Canadian hog/pork industry was truly established during this period.

Perhaps the biggest impacts that the emergence of provincial programs, along with the unfolding of the revised ASA in 1975, up to the U.S. CVD actions against Canada, compared with that might have happened back then under "unrestrained" market conditions, are those summarized in Figures 18.2 and 18.3. The most salient features revealed in these figures and other simulated results not tabulated in this report are the following:

- For all provinces and/or regions, both quarterly hog marketings and cash receipts would have generally been significantly lower after 1980 if "unrestrained" market conditions had prevailed, despite a very slight favorable difference in producer price that might have developed under such circumstances.

- Domestic prices for hogs might have been slightly higher in 1981-82 and much higher in 1985 if the CVD on hogs had been removed; as a matter of fact in 1985 domestic prices would have been higher by \$5.72/cwt on average as a result of lower production and no CVDs.
- However, both Alberta and Ontario on a few occasions would have experienced about the same quarterly hog cash receipts under "unrestrained" market than under the actual situation.
- Lower domestic hog production might in turn have brought about, under these conditions, a fairly large relative decrease in hog/pork exports to the U.S.; for example, in 1985 pork meat output would have been less by 110 million pounds and exports would have been down by 93 million pounds, thereby accounting for 80% of the declined production.
- Net export trade flows for pork products from western Canada to eastern Canada would have been significantly disturbed, going down at first and then increasing quite rapidly thereafter.

This of course is history now.

TABLE 18.1 HOG MARKETINGS, AVERAGE QUARTERLY ESTIMATES, UNDER STATUS QUO AND NO INTERVENTION OPTIONS, 1980-85

	Status quo	No intervention	Difference	
			Volume	Proportion
			(%)	
		(thousand head)		
British Columbia	83.5	73.1	-10.4	-12.0
Alberta	439.3	431.3	-8.0	-1.9
Saskatchewan	176.9	156.6	-20.3	-11.8
Manitoba	355.4	342.9	-12.5	-3.5
Western Canada	1 055.2	1 004.1	-51.1	-4.9
Ontario	1 096.9	1 076.0	-20.9	-1.9
Quebec	1 165.1	1 128.1	-37.0	-3.2
Atlantic provinces	138.0	129.0	-9.0	-6.2
Eastern Canada	2 400.0	2 333.0	-67.0	-2.8
CANADA	3 455.2	3 337.1	-118.1	-3.4

FIGURE 18.1 SIMULATED TOTAL MARKETING OF HOGS IN CANADA
UNDER NO INTERVENTION OPTION, 1975-85

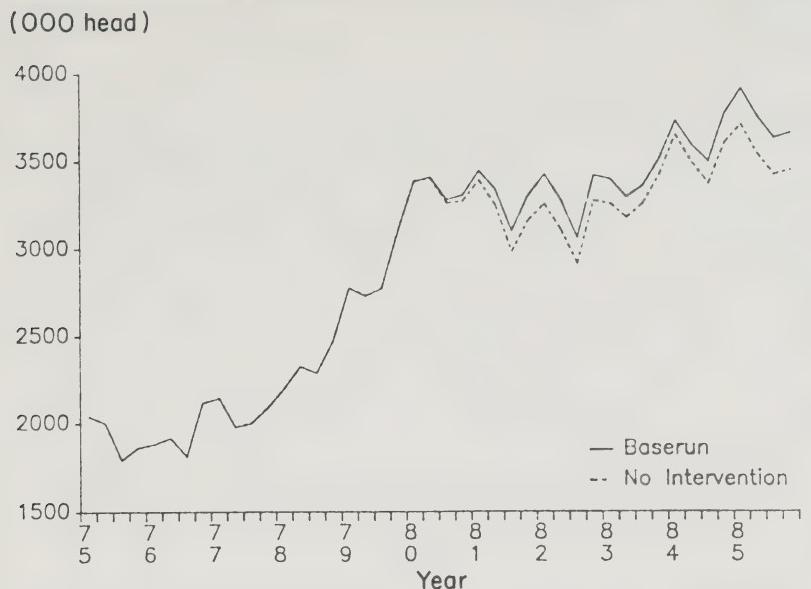


FIGURE 18.2 SIMULATED NATIONAL WEIGHTED PRICE OF INDEX 100
HOGS AND FARM CASH RECEIPTS IN CANADA UNDER THE
STATUS QUO AND NO INTERVENTION OPTIONS, 1975-85

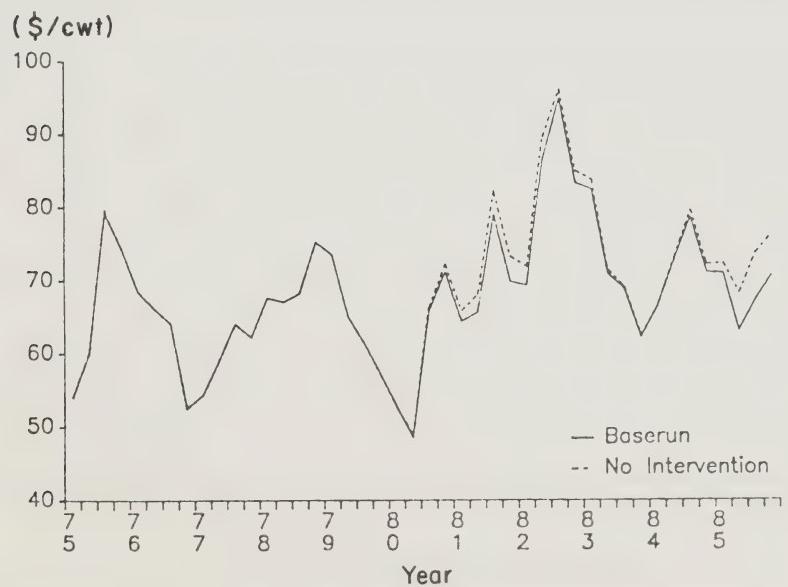


FIGURE 18.3 SIMULATED FARM CASH RECEIPT OF HOGS, UNDER THE STATUS QUO AND NO INTERVENTION OPTIONS, 1975-85

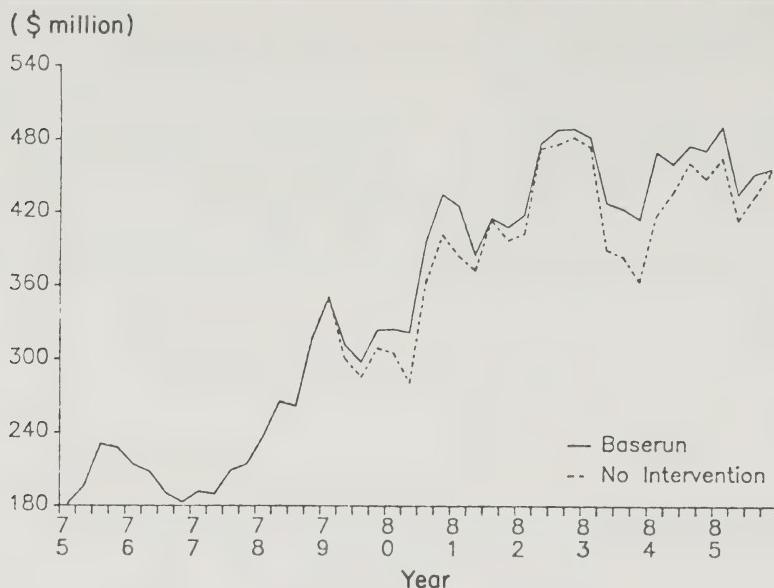


FIGURE 18.4 SIMULATED NET EXPORTS OF PORK UNDER THE STATUS QUO AND NO INTERVENTION OPTIONS, 1975-85

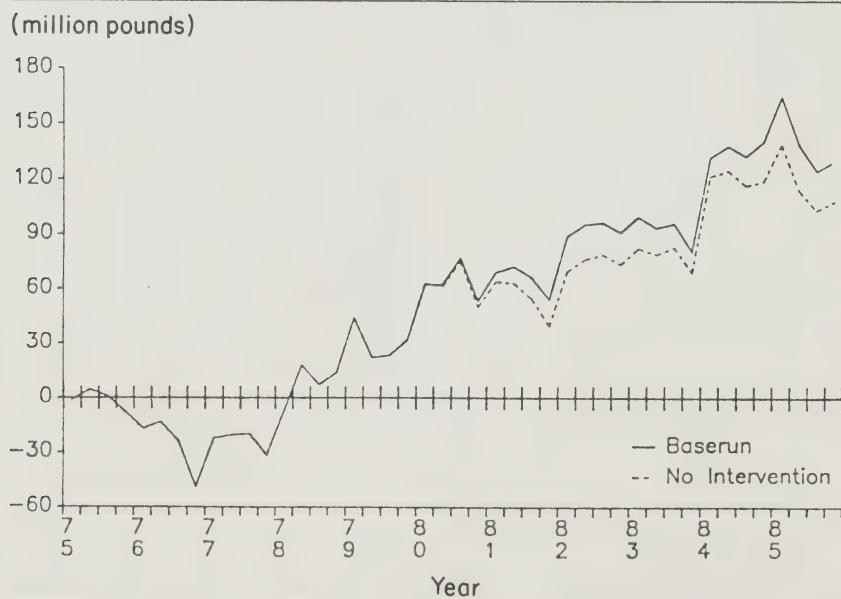
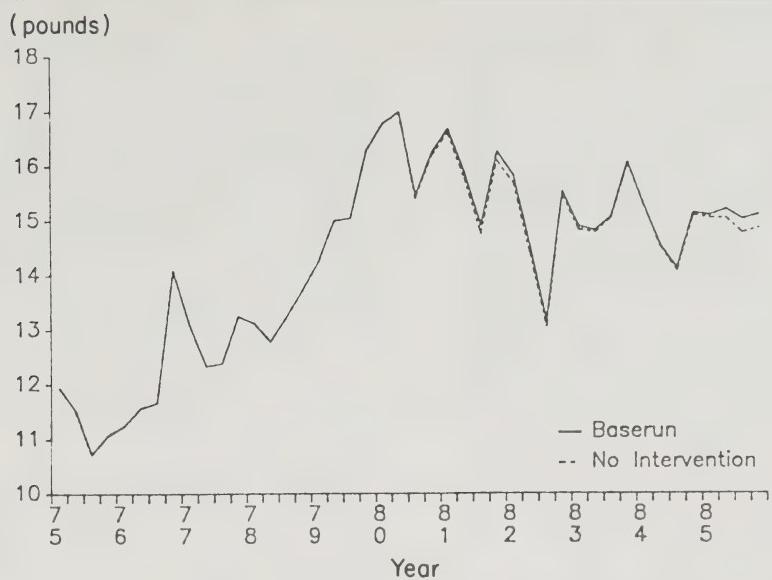


FIGURE 18.5 SIMULATED PER CAPITA DISAPPEARANCE OF PORK UNDER THE STATUS QUO AND NO INTERVENTION OPTIONS, 1975-85



CHAPTER 19: SUPPLY MANAGEMENT ALTERNATIVES IN RESTROSPECT

The impact of supply management on the Canadian hog industry depends on a number of factors associated with that policy. The most important of those considerations would include the following: whether or not any exports or imports are permitted under the program; the method of setting and the level established for the prices for hogs and pork; the effect of substitute products such as poultry meat and beef on the domestic consumption of pork; the size of the national quota and the allocation of that national quota among the various regions and provinces; the provisions established for interregional trade in hog and pork products within the country; and the reactions of competitor countries toward Canadian exports of hogs and pork.

THE SIMULATIONS

In the following analysis, we examine the results and implications of a range of alternatives which might be adopted under a supply management program. These alternatives are based on a variety of assumptions relating to cost of production, prices and export conditions.

Two general time frames have been used for the analysis. In the 1975-85 time frame, we examine the probable consequences of alternative supply management programs, had they been adopted during the 1975-85 period. In the 1986-91 time frame, we examine the probable future consequences of a variety of options available under a general supply management program for the hog industry in Canada. This discussion is included in a later chapter.

In the analysis relating to the 1975-85 period, the various options and the associated assumptions examined are described fully in Appendix N and can be summarized as follows:

- **SUP 1.1:** Under this option, exports are set at zero and domestic hog prices are set equal to a production cost of \$78/cwt in the first quarter of 1986. Imports are also set at zero on the basis of Canada's self-sufficiency during the base period 1970-74. It is also assumed that production matches consumption in each quarter.

- **SUP 2.1:** Under this option, exports are set at the equivalent of 10% of total production. Domestic price is set equal to a production cost of \$78/cwt in the first quarter of 1986. The overall price received by the hog producer is a blended price comprised of \$78/cwt (the domestic price) for 90% of production, and the equivalent of a U.S. price (adjusted for appropriate handling and transportation costs) for the remaining 10% of production. But the consumer pays the \$78/cwt. It is assumed that exports are between western Canada and other countries. Western Canada has been chosen because it shows the biggest surplus during the 1970-74 base period.
- **SUP 9.1:** All assumptions for this option are similar to those used for SUP 2.1 except production costs (and accordingly, domestic hog prices), which are set at \$70/cwt for the first quarter of 1986.
- **SUP 10.1:** All assumptions for this option are similar to those used for SUP 2.1 except the production costs (and domestic prices) which are set at \$85/cwt for the first quarter of 1986.
- **SUP 3.1:** Under this option exports are set at a level equivalent to 25% of Canadian hog production. Production cost is set at \$78/cwt for the first quarter of 1986. The blended price received by the Canadian hog producer is comprised of the domestic price on 75% of the production and the U.S. price (adjusted for transportation costs) on the remaining 25% of the hog production. The Canadian consumer pays \$85/cwt. It is assumed that 10% of the Canadian production is exported from eastern Canada to other countries and that 15% of production is exported from western Canada.
- **SUP 4.1:** The assumptions associated with this option are similar to those for SUP 3.1 but the overall price to Canadian hog producers and consumers is set equal to the U.S. price adjusted for appropriate transportation costs.

As a reference point for the analysis of the various supply management options, each option is compared to a basic option called the status quo option and labeled Base 1.1. In other words, the various supply management options are

compared with the actual situation that existed for the Canadian hog industry during the 1975-85 period.

Further conditions and assumptions relating to the analysis which follows should be noted:

- Under the zero export option, the national production quota is set equal to national consumption. The allocation of the national quota among the provinces is based on data shown in Table 19.1. The method used for the allocation of the national quota for hog production parallels that used in the case of the egg supply management program when it was first established; that is, the average of the five years' production for each province or region previous to the commencement of the supply management program.
- The production cost of \$78/cwt (warm dressed carcass weight) is set for the first quarter of 1986. Costs and corresponding prices for earlier years are derived by an appropriate cost index adjustment of the \$78/cwt figure.
- An appropriate margin or markup is added to the producer price to provide wholesale and retail prices for pork; an appropriate price is also set at the wholesale and retail levels for low-quality beef, a competitive substitute for pork products. Demand elasticities in this model are: pork price = -0.7; hamburger meat price = -0.21; income = 0.52.
- All federal and provincial price and income stabilization programs are discontinued under the various supply management options.

THE RESULTS

Impact on hog marketings

In the case of all the supply management options for the 1975-85 period, hog production and marketings would have exceeded the status quo (base period) during the first half of the period when Canada was on an import basis, and would have fallen below the base period level during the latter part of the period under study. By far the largest expansion in hog production and marketing would have occurred under the supply management options SUP 3.1 and SUP 4.1 (under which 25% of the domestic production would have been exported). See Figure 19.1 and Tables 19.2 and 19.3.

Because of the base period chosen, the national increase in hog production and marketings would have come from the three Prairie provinces,

while hog production and marketings would actually have declined in eastern Canada. Only under the supply management options SUP 3.1 and SUP 4.1 would hog production and marketings have increased in Ontario and the Atlantic provinces; there would have been reduction in hog production in Quebec and B.C. under all the supply management options.

Net exports of hogs and pork

Under the zero export option SUP 1.1, some 57.4 million pounds of the excess production in the Prairies would have been shipped to eastern Canada (Table 19.4). In the case of the 25% export options SUP 3.1 and SUP 4.1, it is assumed that the excess production from the Prairies would be exported to the U.S. and other countries; in fact, to cover the 25% of production, 7 million pounds would have to be moved from eastern Canada to the Prairies.

In the case of eastern Canada, it is assumed that no hogs or pork would have been exported to the U.S. or other countries. With the exception of the supply management options SUP 3.1 and SUP 4.1, eastern Canada would have been less than self-sufficient in hog production to the extent that some hogs and pork products would have to be moved from the Prairies to eastern Canada.

Price of hogs

The national average hog price shows relatively little variation from the status quo (Base 1.1) price for the 1975-85 period. The highest average price would have occurred for the supply management option SUP 10.1, where the domestic price of \$85/cwt is blended with the U.S. price on the 10% of the product exported (Table 19.6).

When price movements are charted by quarter year, however, the prices under the various supply management options tend to be below the base period price during the earlier part of the 1975-85 period and above the base price during the latter part of the period. In the case of the supply management option SUP 4.1, however, the blended price received by Canadian hog producers tends to follow the base period price movements. This is understandable in view of the fact that Canadian hog prices are set equal to the U.S. hog prices adjusted for transportation and handling charges. As we note later, the higher prices, when they occur, do not always translate into higher cash receipts for hog producers.

Cash receipts from hogs

In only two cases, the supply management options SUP 3.1 and SUP 4.1, would the various supply management options have produced receipts that would have exceeded those of the Base 1.1. The lowest receipts would have occurred with the supply management option SUP 1.1, the zero export option. Indeed, the total receipts from supply management option SUP 10.1, where the domestic price is set at \$85/cwt, would have fallen below those of Base 1.1. Expanded receipts would have been influenced more by volume of production than by price (Table 19.7).

Even when the supply management option prices rise above the base period price during the latter part of 1975-85, this does not translate into higher receipts for hog producers.

The major effect of the various supply management options would have been to increase receipts from hog production in western Canada and to reduce the receipts in eastern Canada (Table 19.8 and Figure 19.7). This shift of receipts from eastern to western Canada would have followed from the corresponding shift in production from the East to West, due primarily to the choice of base period.

Impact of supply management on domestic consumption of pork

One cannot discuss supply management without some consideration of the impact on the domestic consumption of pork. This impact is illustrated

by comparing the status quo with the supply management option SUP 1.1 (zero export) for the 1975-85 period.

The general effect of option SUP 1.1, for example, would have been to reduce hogs slaughtered from 13.82 million to 10.59 million hogs in 1985 (Table 19.10). Part of this decrease would have been due to the reduction in slaughter hog exports from 1.15 million hogs under the status quo to zero exports under the supply management option SUP 1.1 (Table 19.10).

In addition, however, a significant part of the overall reduction would have occurred because of the drop in the Canadian consumption of pork.

Under option SUP 1.1, hog prices would have increased to \$81.18/cwt, compared with \$65.30/cwt under the status quo in 1985. This increase in price under option SUP 1.1 would have led in turn to a drop in Canadian consumption of pork of approximately 56 million pounds (Table 19.10).

In general, the greater the price elasticity of demand for pork and the greater the price increase generated under the supply management program compared with the status quo, the greater would have been the reduction in the domestic consumption of pork. In other words, Canadian consumers of pork would have responded negatively to higher pork prices, if other meat substitutes had been readily available to them.

TABLE 19.1 TOTAL HOG PRODUCTION AND DISTRIBUTION BY PROVINCE, 1970 Q1 TO 1974 Q4

	Production	Share of total hog Production
	(thousand head)	(%)
Atlantic provinces	1 687.0	3.575
Quebec	9 763.6	20.680
Ontario	14 632.0	31.000
Manitoba	6 392.6	13.540
Saskatchewan	5 333.8	11.300
Alberta	9 060.0	19.100
British Columbia	332.0	0.703
CANADA	47 202	100.00

TABLE 19.2 HOG MARKETINGS, AVERAGE QUARTERLY ESTIMATES, UNDER STATUS QUO AND SUPPLY MANAGEMENT OPTIONS, 1975-85

	Status quo Base 1.1	Supply management					
		SUP 1.1	SUP 2.1	SUP 9.1	SUP 10.1	SUP 3.1	SUP 4.1
(thousand head)							
British Columbia	55.90	18.22	20.16	20.75	19.65	24.18	23.74
Alberta	377.48	497.07	550.02	566.30	536.30	659.90	647.80
Saskatchewan	161.12	292.64	323.92	333.39	315.73	388.49	381.37
Manitoba	297.68	350.73	388.23	399.57	378.41	465.61	457.08
Western Canada	892.19	1 158.65	1 282.54	1 320.02	1 250.09	1 538.18	1 509.99
Ontario	928.90	802.78	888.61	914.58	866.13	1 065.74	1 046.21
Quebec	957.69	535.68	592.95	610.28	577.95	711.14	698.11
Atlantic provinces	112.25	92.56	102.45	105.45	99.86	122.87	120.62
Eastern Canada	1 998.83	1 431.01	1 584.01	1 630.31	1 543.95	1 899.75	1 864.93
CANADA	2 891.02	2 589.71	2 866.60	2 950.39	2 794.09	3 438.00	3 374.99

TABLE 19.3 DIFFERENCES IN AVERAGE QUARTERLY HOG MARKETINGS UNDER STATUS QUO AND SUPPLY MANAGEMENT OPTIONS, 1975-85

	Status quo Base 1.1	Differences from status quo					
		SUP 1.1	SUP 2.1	SUP 9.1	SUP 10.1	SUP 3.1	SUP 4.1
(thousand head)							
British Columbia	55.90	-37.68	-35.73	-35.14	-36.24	-31.72	-32.16
Alberta	377.48	+119.59	+172.73	+188.82	+158.82	+282.41	+270.31
Saskatchewan	161.12	+131.51	+162.80	+172.27	+154.60	+227.37	+220.25
Manitoba	297.68	+53.04	+90.54	+101.89	+80.72	+167.93	+159.40
Western Canada	892.19	+266.46	+390.34	+427.83	+357.90	+645.99	+617.80
Ontario	928.90	-126.12	-40.29	-14.31	-62.76	+136.84	+117.31
Quebec	957.69	-422.01	-364.74	-347.41	-379.74	-246.54	-259.58
Atlantic provinces	112.25	-19.69	-9.80	-6.80	-12.39	+10.62	+8.37
Eastern Canada	1 993.83	-567.82	-414.82	-368.52	-454.89	-99.08	-133.90
CANADA	2 891.02	-301.30	-24.42	+59.37	-96.93	+546.99	+483.97

TABLE 19.4 AVERAGE QUARTERLY NET EXPORTS, BY ORIGIN AND DESTINATION,
UNDER STATUS QUO AND SUPPLY MANAGEMENT OPTIONS, 1975-85

Status quo Base 1.1	Supply management					
	SUP 1.1	SUP 2.1	SUP 9.1	SUP 10.1	SUP 3.1	SUP 4.1
(million pounds)						
<i>Western Canada to:</i>						
Eastern Canada	10.73	57.41	35.66	36.64	34.80	-7.33
U.S.	0.80	0	0	0	0	69.95
Other countries	4.89	-	38.85	39.76	38.05	46.63
<i>Eastern Canada to:</i>						
U.S.	19.67	0	0	0	0	0
Other countries	14.06	0	0	0	0	0
<i>Canada to:</i>						
U.S.	20.47	0	0	0	0	69.95
						68.98

TABLE 19.5 DIFFERENCES IN AVERAGE QUARTERLY NET EXPORTS UNDER STATUS QUO AND SUPPLY MANAGEMENT OPTIONS, 1975-85

Status quo Base 1.1	Differences from status quo					
	SUP 1.1	SUP 2.1	SUP 9.1	SUP 10.1	SUP 3.1	SUP 4.1
(million pounds)						
<i>Western Canada to:</i>						
Eastern Canada	+ 46.68	+ 24.92	+ 25.91	+ 24.07	-18.06	-18.39
U.S.	-0.80	-0.80	-0.80	-0.79	+ 69.15	+ 68.18
Other countries	-4.89	+ 33.96	+ 34.86	+ 33.16	+ 41.74	+ 41.09
<i>Eastern Canada to:</i>						
U.S.	-19.67	-19.67	-19.67	-19.67	-19.67	-19.67
Other countries	-14.06	-14.06	-14.06	-14.06	-14.06	-14.06
<i>Canada to:</i>						
U.S.	-20.47	-20.47	-20.47	-20.47	+ 49.48	+ 48.51

TABLE 19.6 AVERAGE PRICE OF HOGS UNDER STATUS QUO AND SUPPLY MANAGEMENT OPTIONS, 1975-85

Status quo Base 1.1	Supply management					
	SUP 1.1	SUP 2.1	SUP 9.1	SUP 10.1	SUP 3.1	SUP 4.1
(\$/cwt)						
Alberta	66.27	65.72	65.99	60.75	70.57	66.38
Saskatchewan	65.72	65.72	65.99	60.75	70.57	66.38
Manitoba	65.72	65.72	65.99	60.75	70.57	66.38
Ontario	68.42	65.72	65.99	60.75	70.57	66.38
CANADA	67.91	65.72	65.99	60.75	70.57	66.38
						68.37

TABLE 19.7 AVERAGE QUARTERLY CASH RECEIPTS FROM HOGS UNDER STATUS QUO AND SUPPLY MANAGEMENT OPTIONS, 1975-85

	Status quo Base 1.1	Supply management					
		SUP 1.1	SUP 2.1	SUP 9.1	SUP 10.1	SUP 3.1	SUP 4.1
		(\$ million)					
British Columbia	6.98	2.05	2.27	2.14	2.38	2.74	2.75
Alberta	44.18	55.84	62.06	58.50	64.98	74.81	75.14
Saskatchewan	18.89	32.87	36.54	34.44	38.26	44.04	44.24
Manitoba	34.35	39.40	43.79	41.28	45.85	52.79	53.02
Western Canada	104.39	130.15	144.66	136.37	151.47	174.39	175.15
Ontario	111.17	89.79	99.85	93.94	104.73	120.46	121.41
Quebec	116.46	59.92	66.63	62.68	69.88	80.38	81.02
Atlantic provinces	14.22	10.35	11.51	10.83	12.07	13.89	14.00
Eastern Canada	241.85	160.06	178.00	167.46	186.69	214.72	216.42
CANADA	346.24	290.21	322.66	303.83	338.15	389.11	391.57

TABLE 19.8 AVERAGE QUARTERLY, CASH RECEIPTS FROM HOGS UNDER STATUS QUO AND SUPPLY MANAGEMENT OPTIONS, 1975-85

	Status quo Base 1.1	Differences from status quo					
		SUP 1.1	SUP 2.1	SUP 9.1	SUP 10.1	SUP 3.1	SUP 4.1
		(\$ million)					
British Columbia	6.98	-4.93	-4.70	-4.83	-4.60	-4.24	-4.22
Alberta	44.18	+11.66	+17.88	+14.33	+20.80	+30.64	+30.96
Saskatchewan	18.89	+13.98	+17.65	+15.55	+19.37	+25.16	+25.35
Manitoba	34.35	+5.05	+9.44	+6.93	+11.50	+18.43	+18.67
Western Canada	104.39	+25.76	+40.27	+31.98	+47.07	+69.99	+70.75
Ontario	111.17	-21.38	-11.32	-17.22	-6.44	+9.28	+10.24
Quebec	116.46	-56.54	-49.83	-53.77	-46.58	-36.08	-35.44
Atlantic provinces	14.22	-3.86	-2.70	-3.39	-2.14	-0.33	-0.22
Eastern Canada	241.85	-81.79	-63.85	-74.39	-55.16	-27.12	-25.42
CANADA	346.24	-56.03	-23.58	-42.41	-8.09	+42.87	+45.33

TABLE 19.9 AVERAGE QUARTERLY VALUE-ADDED IN THE PRIMARY PORK CUT INDUSTRY UNDER STATUS QUO AND SUPPLY MANAGEMENT OPTIONS, 1975-85

Status quo Base 1.1	Supply management						
	SUP 1.1	SUP 2.1	SUP 9.1	SUP 10.1	SUP 3.1	SUP 4.1	
	(\$ million)						
Western Canada	26.52	35.41	39.95	41.65	38.49	47.94	45.99
Eastern Canada	60.40	43.53	49.12	51.13	47.40	58.98	56.77
CANADA	86.92	78.94	89.07	92.78	88.89	106.92	102.76

TABLE 19.10 COMPARISON OF VARIOUS FACTORS UNDER STATUS QUO AND SUPPLY MANAGEMENT WITH NO EXPORTS OPTIONS

	Average 1981	Average 1985	Average 1975-85
Hogs slaughtered (000 head)			
Base period	13 047	13 822	11 193
SUP 1.1	11 178	10 590	10 359
Export slaughter hogs (000 head)			
Base period	147	1 152	373
SUP 1.1	0	0	0
Disappearance of pork Canada (million pounds)			
Base period	1 550	1 531	1 374
SUP 1.1	1 519	1 475	1 403
Per capita disappearance of pork Canada (pounds per capita)			
Base period	64.7	60.4	57.0
SUP 1.1	62.4	58.2	58.3
Price hogs (\$/cwt)			
Base period	68.10	65.30	66.27
SUP 1.1	77.20	81.18	65.72
Hog receipts (\$ million)			
Base period	1 633	1 833	1 385
SUP 1.1	1 456	1 487	1 160

FIGURE 19.1 AVERAGE QUARTERLY, CASH RECEIPTS FROM HOGS UNDER THE STATUS QUO AND SUPPLY MANAGEMENT OPTIONS,
1975-85

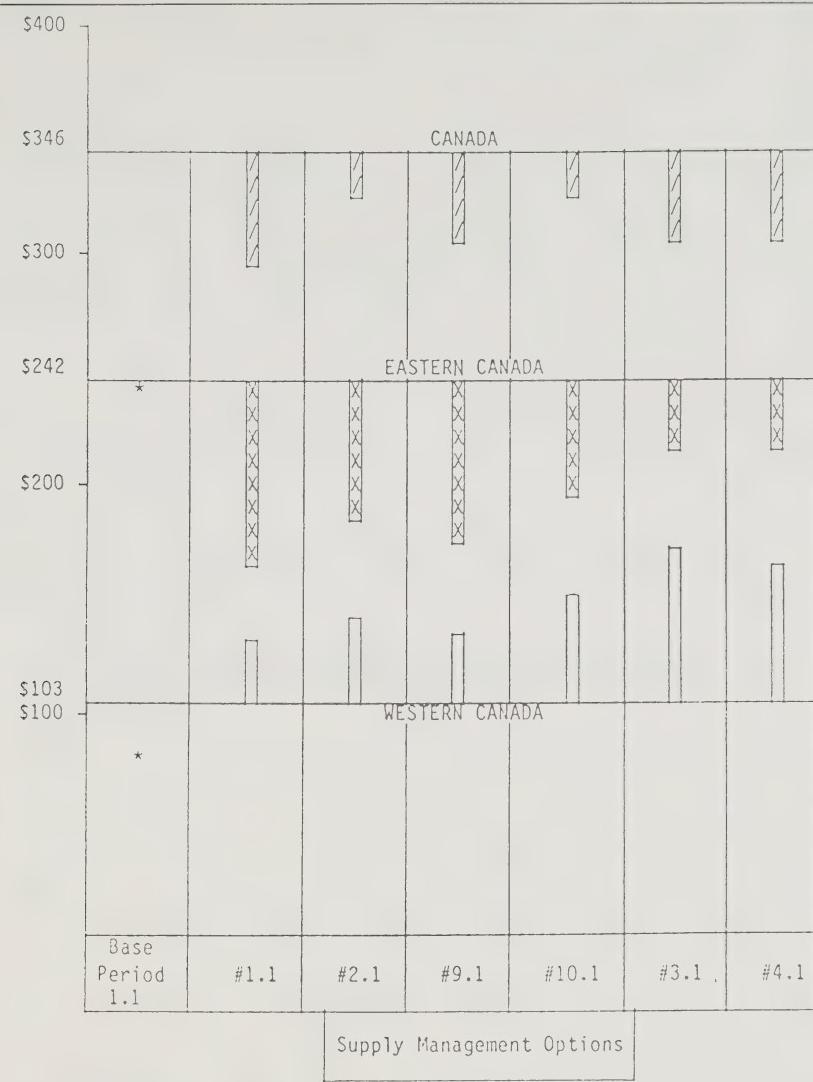


FIGURE 19.2 MARKETING OF HOGS UNDER STATUS QUO AND SUPPLY MANAGEMENT OPTIONS, 1975-85

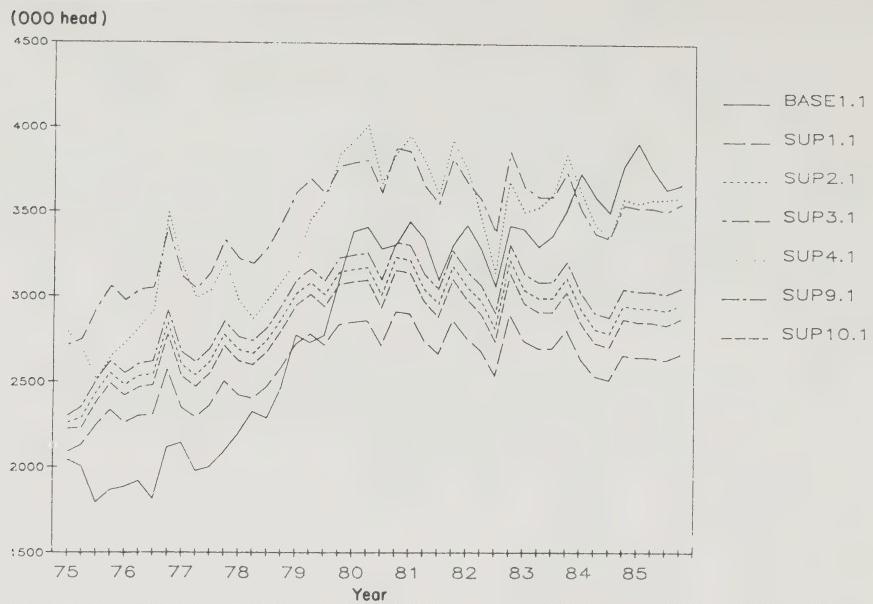


FIGURE 19.3 ASSUMED TOTAL COST OF PRODUCING HOGS UNDER SELECTED SUPPLY MANAGEMENT OPTIONS, 1975-85

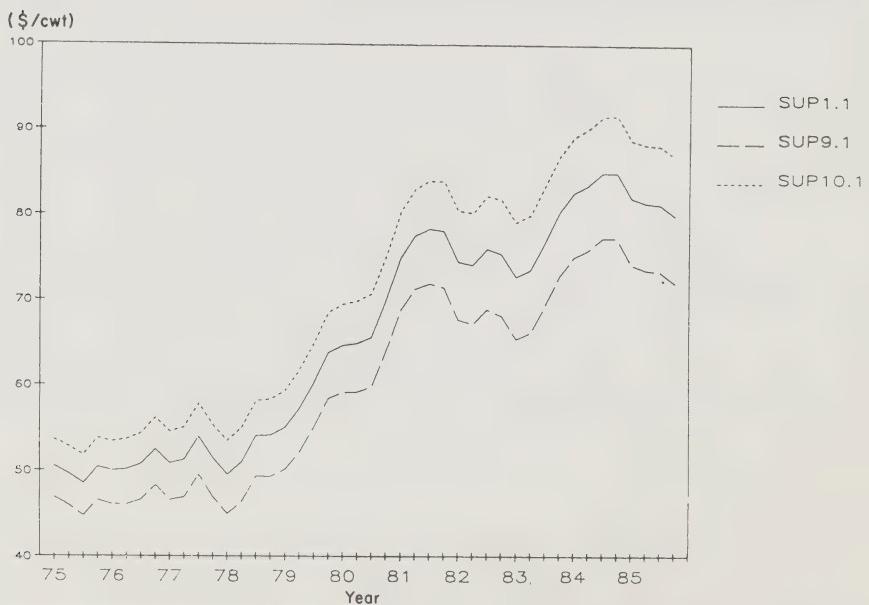


FIGURE 19.4 NATIONAL WEIGHTED PRICE OF INDEX 100 UNDER STATUS QUO AND SUPPLY MANAGEMENT OPTIONS, 1975-85

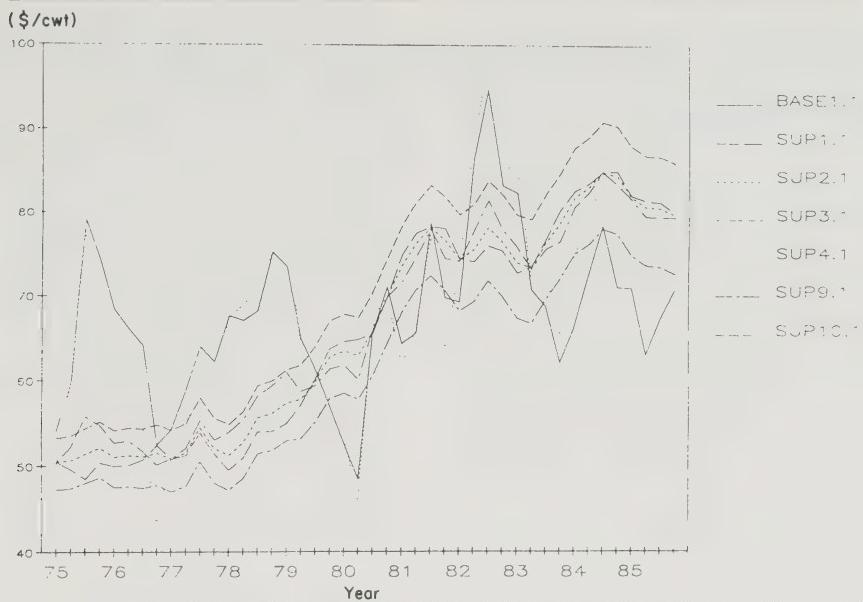
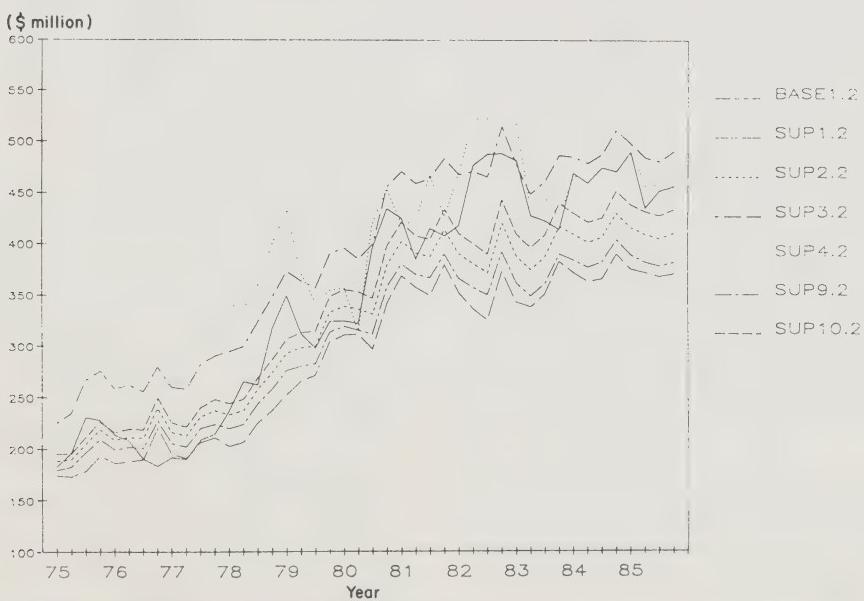


FIGURE 19.5 FARM CASH RECEIPT FOR HOGS UNDER STATUS QUO AND SUPPLY MANAGEMENT OPTIONS, 1975-85



THE FUTURE PERSPECTIVE, 1986-91

CHAPTER 20: BASELINE REFERENCE FOR PROSPECTIVE POLICY CHANGES

In Chapters 21 to 24 which follow, an analysis is made of the impact on the Canadian hog industry of the following sets of policy alternatives:

- A U.S. countervailing duty is imposed on Canadian pork exports to the U.S. for the 1986-91 period, in addition to the status quo conditions described below;
- Tripartite red meat policy described in Chapter 9 is adopted by all the provinces, in addition to the U.S. countervailing duty on hog exports from Canada throughout the 1986-91 period;
- No intervention in the marketplace, whereby domestic programs are dropped and the countervailing duties on hogs and pork are eliminated;
- Various supply management options are applied to the Canadian hog industry, with all existing federal and provincial price stabilization programs dropped for the purposes of the analysis.

As a point of departure for the analysis of these alternative policies for the 1986-91 period, a baseline reference is adopted, Base 2.1, as described in Appendix N.

The following conditions and assumptions hold for the baseline reference situation.

Quebec, British Columbia and the Atlantic provinces would join in the federal tripartite program; they would retain their own provincial stabilization programs (see Chapter 8 for details of the British Columbia and Quebec programs).

Premiums collected under the piglet and the slaughter hog programs in Quebec, as well as those pertaining to the British Columbia program would be preestablished to reach a zero cumulative deficit during the first quarter of 1991.

For the Atlantic provinces, the fixed rules under which the values of the premiums are established would be retained, which implies that the rules under which the present cumulative deficit happened (which is already fairly large) would be left as they are.

Manitoba would join in the federal tripartite during the third quarter of 1986, after having kept its own provincial program in operation until the second quarter of 1986. The government of Manitoba would swallow up whatever cumulative deficit might then exist but the public expenses then incurred would not be added to the other costs of the hogs stabilization program to Manitoba government.

Saskatchewan would join in the federal tripartite program while going through a provincial program phasing out process. More precisely, total payments received by Saskatchewan hog producers in the first quarter of 1986 and succeeding periods would be determined according to a phasing out parameter multiplied by the difference between the provincial payment and tripartite payment, plus the tripartite payment, where the phasing out parameter follows the schedule:

0.9 in 1986
0.7 in 1987
0.5 in 1988
0.3 in 1989
0.1 in 1990
0.0 in 1991

Given the administrative arrangements made by the Saskatchewan government, premiums paid by the producers for the provincial program would be set at a level which assumes that the cumulative deficit of the provincial program by the first quarter of 1991 would be approximately equal to that existing at the end of the last quarter of 1985. Saskatchewan hog producers would therefore pay two premiums for stabilization, one for the provincial program, and one for the federal tripartite program throughout the forecast period.

In Alberta and Ontario, the ASA program would be replaced by the federal tripartite program. Moreover, the Alberta Feed Grain Market Adjustment Program would have a likely lagged effect on provincial hog production by the

first quarter of 1987. However, the existence of this program would not have a significant impact on the calculation of the tripartite national, cash cost of production for hogs.

Premiums paid for participating in the tripartite program would start being collected during the third quarter of 1986. The level of the premium would be preestablished on the basis of the expected surplus and/or deficit of the tripartite program at the end of the first quarter of 1991. The participation rate in each participating province would be 90%.

The guaranteed margin set up for provinces would be phased down during the forecast period according to the following schedule:

0.95 in 1986
0.94 in 1987
0.93 in 1988

0.92 in 1989
0.91 in 1990
0.90 in 1991

The analysis included in Chapters 21 to 24 attempts to assess the possible implications that would be associated with several policy alternatives if they were adopted for the 1986-91 period, rather than having a continuation of the set of policies which existed in 1986. The analysis focuses, in particular, on the impact of these alternative policies on such aspects of the Canadian hog industry as production, interprovincial movement of the hogs and pork products, prices, producer income and trade in hogs and pork products. All of these impacts are measured in terms of the nature and extent of departures from the baseline reference situation described above.

CHAPTER 21: COUNTERVAILING DUTY ON PORK EXPORTS

It will be recalled from Chapter 20 that the baseline reference for policy changes during the 1986-91 period essentially represents the situation which existed in the Canadian hog industry during the first quarter of 1986. Under the baseline situation, it is assumed that all provinces, with the exception of British Columbia, Quebec and the Atlantic provinces, would join the national tripartite program. The baseline reference situation also includes a countervailing duty on the Canadian export of live hogs to the U.S.

The policy alternative analyzed in this chapter assumes the same conditions and assumptions as those for the baseline reference, with the exception of an assumption that a countervailing duty would be placed on Canadian pork exports to the U.S. In other words, what would be the impact on the Canadian hog industry if the U.S. did impose a countervailing duty on Canadian pork exports?

For the purposes of the analysis which follows, this policy alternative has been designated as CVDPORK1 in Appendix N.

In all regions, hog marketings under the CVDPORK1 policy option would fall below those for the base period as set out in scenario Base 2.1 in Appendix N (Table 21.1 and Figure 21.1).

In western Canada, net exports of pork products would increase to eastern Canada and

would drop by approximately 8 million pounds to the U.S. Pork exports from eastern Canada to the U.S., relative to the base period, would be reduced by nearly 6.9 million pounds (Table 21.2). As expected, hog exports to the U.S. would increase significantly both in the East and in the West and accordingly replace about half of the lost market for pork.

Hog prices would drop only marginally as a result of the countervailing duty on Canadian pork exports to the U.S. (Table 21.3). It is interesting to note that the average Canadian hog price would drop by only \$1.51/cwt when the simulated countervailing duty on Canadian pork exports to the U.S. is added to the countervailing duty on hogs. The countervailing duty is set at 5.50/cwt from the first quarter of 1986 to the third quarter of 1987 and then reduced to and held at \$4.40/cwt for the remainder of the forecast period.

Cash receipts from hogs under the CVDPORK1 option, compared with those of the base period, would drop by \$13 million or about 2.7% (Table 21.4). In other words, the countervailing duty on pork exports would not significantly affect the welfare of Canadian hog producers. The countervailing duty on hogs, as demonstrated in the no intervention historical scenario for the 1975-85 period would be much more damaging to the industry.

TABLE 21.1 HOG MARKETINGS, AVERAGE QUARTERLY ESTIMATES, UNDER STATUS QUO AND COUNTERVAIL-ON-PORK OPTIONS, CANADA, 1986-91

	Status quo	CVDPORK1	Difference
(000 head)			
British Columbia	89.86	88.47	-1.39
Alberta	506.71	503.06	-3.65
Saskatchewan	196.58	192.01	-4.57
Manitoba	433.74	427.12	-6.62
Western Canada	1 226.89	1 210.66	-16.22
Ontario	1 163.77	1 153.79	-9.98
Quebec	1 176.58	1 166.85	-9.73
Atlantic provinces	146.60	145.14	-1.46
Eastern Canada	2 486.95	2 465.78	-21.16
CANADA	3 713.83	3 676.45	-37.38

TABLE 21.2 AVERAGE QUARTERLY NET EXPORTS, BY ORIGIN AND DESTINATION,
UNDER STATUS QUO AND COUNTERVAIL-ON-PORK OPTIONS, 1986-91

	Status quo	CVDPORK1	Difference
(million pounds)			
<i>Western Canada to:</i>			
Eastern Canada	9.69	12.65	+2.96
U.S.	31.48	23.33	-8.15
Other countries	4.89	4.89	0
<i>Eastern Canada to:</i>			
U.S.	68.93	62.06	-6.86
Other countries	18.88	18.88	0
<i>Canada to:</i>			
U.S.	100.40	85.39	-15.01

TABLE 21.3 AVERAGE PRICE OF HOGS UNDER STATUS QUO AND
COUNTERVAIL-ON-PORK OPTIONS, 1986-91

	Status quo	CVDPORK1	Difference
(\$/cwt)			
Alberta	70.79	69.06	-1.73
Saskatchewan	70.25	68.68	-1.56
Manitoba	70.73	69.26	-1.48
Ontario	73.37	71.90	-1.46
CANADA	72.78	71.27	-1.51

TABLE 21.4 AVERAGE QUARTERLY TOTAL CASH RECEIPTS FROM HOGS UNDER STATUS
QUO AND COUNTERVAIL-ON-PORK OPTIONS, 1986-91

	Status quo	CVDPORK1	Difference
(\$ million)			
British Columbia	11.46	11.11	-0.35
Alberta	61.69	59.76	-1.93
Saskatchewan	23.99	23.04	-0.95
Manitoba	52.75	50.90	-1.85
Western Canada	149.89	144.82	-5.07
Ontario	154.12	149.81	-4.30
Quebec	158.15	154.83	-3.32
Atlantic provinces	20.51	20.12	-0.40
Eastern Canada	332.78	324.76	-8.02
CANADA	482.67	469.58	-13.09

TABLE 21.5 AVERAGE QUARTERLY VALUE-ADDED IN THE PRIMARY PORK CUT
INDUSTRY UNDER STATUS QUO AND COUNTERVAIL-ON-PORK OPTIONS,
1986-91

	Status quo	CVDPORK1	Difference
(\$ million)			
Western Canada	48.75	47.53	-1.22
Eastern Canada	105.46	103.14	-2.32
CANADA	154.20	150.67	-3.54

FIGURE 21.1 MARKETING OF HOGS UNDER STATUS QUO AND COUNTERVAIL-ON-PORK OPTIONS, 1986-91

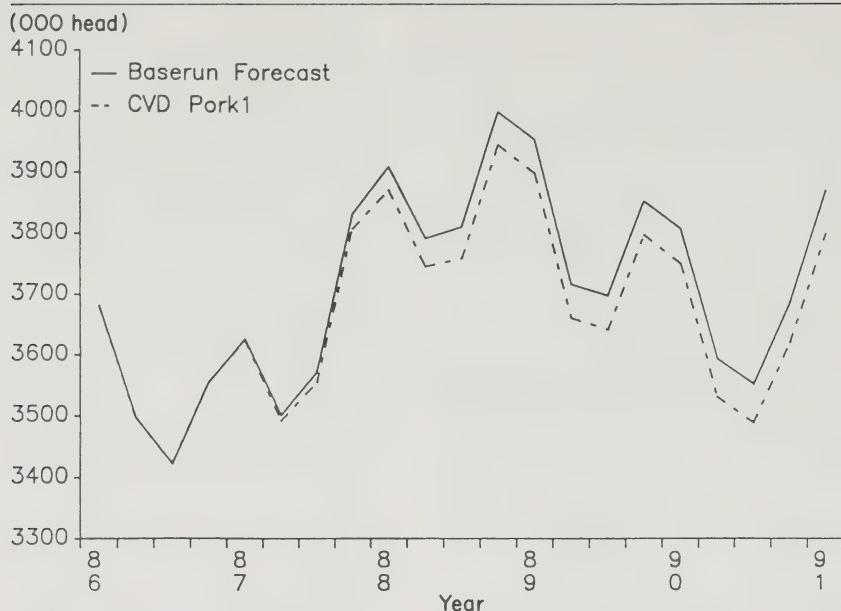


FIGURE 21.2 NATIONAL WEIGHTED PRICE OF INDEX 100 HOGS UNDER THE STATUS QUO AND COUNTERVAIL-ON-PORK OPTIONS, 1986-91

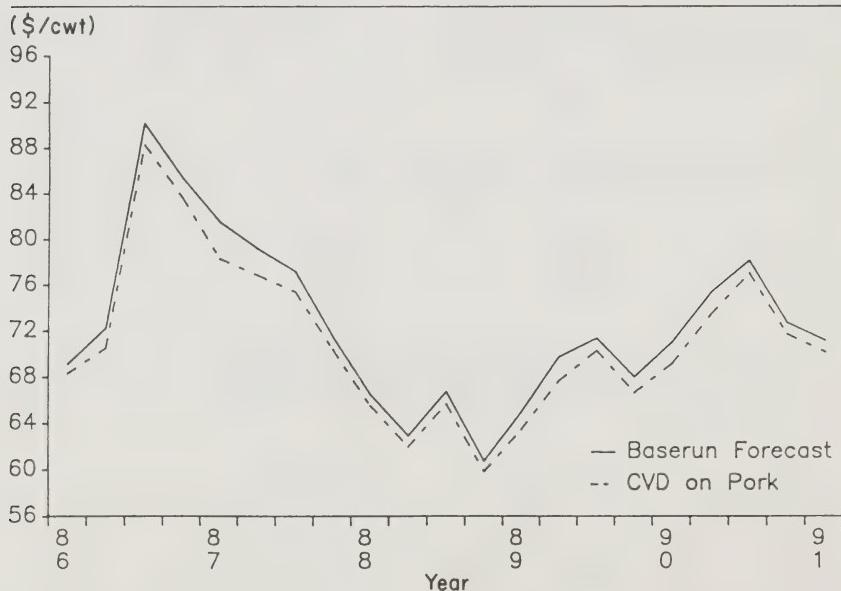


FIGURE 21.3 FARM CASH RECEIPTS FOR HOGS UNDER STATUS QUO AND COUNTERVAIL-ON-PORK OPTIONS, 1986-91

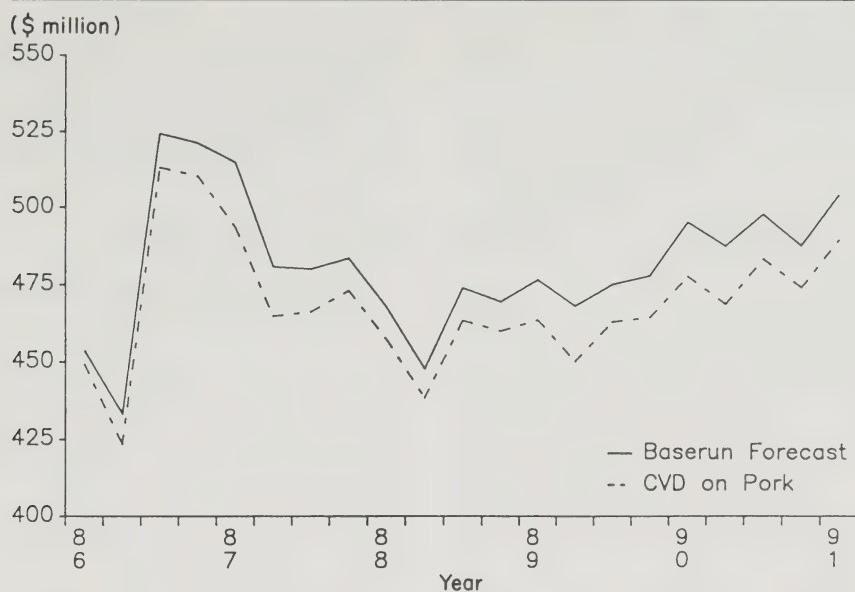
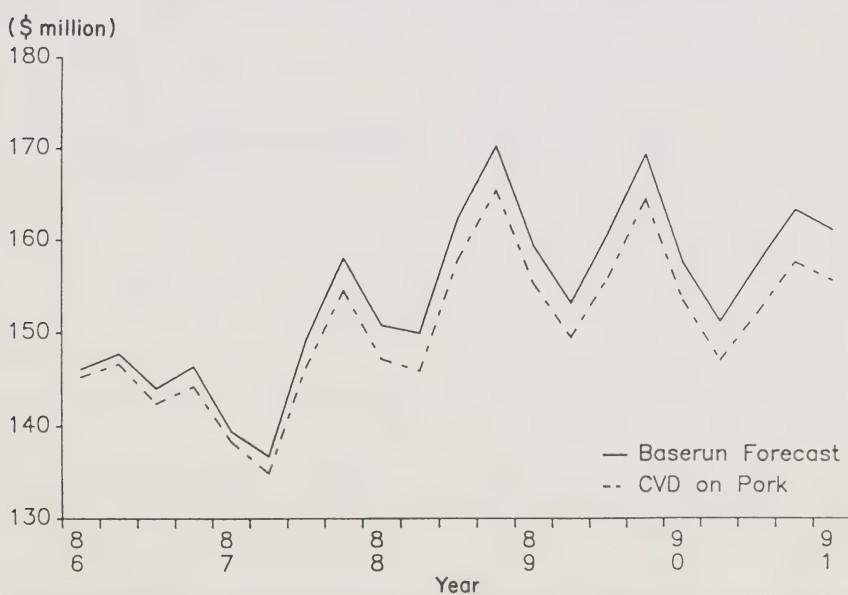


FIGURE 21.4 VALUE-ADDED IN THE PORK PRIMARY CUTS INDUSTRY UNDER STATUS QUO AND COUNTERVAIL-ON-PORK OPTIONS, 1986-91



CHAPTER 22: COMPLETE TRIPARTITE PROGRAM

The impact of increased standardization of hog stabilization programs in Canada, under the new general umbrella of Chapter 36 of Bill C-25, known as the National Tripartite Price Stabilization Program, if implemented from coast to coast, would necessarily depend on at least two sets of factors. The first set of such factors are those associated with the nature of the program itself. The second set comprises those associated with the provincial adjustment processes or conditions under which each provincial program was, is or could be phased out. The latter programs are somewhat difficult to incorporate into the modeling exercise, especially for those provinces which have not yet agreed to participate in the tripartite program. This is why the phasing out of those programs has to be carefully established. Specific conditions therefore also have to be preestablished for such cases; these can be found in Appendix N under code FULLTRI1.

The new program is tripartite in nature in the sense that the costs of the stabilization schemes developed and/or redeployed under it are shared equally by the government of Canada, the governments of participating provinces and also by participating producers. One may wonder why the existence of U.S.-imposed countervailing duties (CVDs) on forthcoming shipments of live hogs from Canada to the U.S. is presumed to continue unimpaired under such circumstances. This study does not attempt to scientifically establish the validity of this underlying assumption. Nor does it attempt to determine how the producers' share in the financing of the standardized program might impact on forthcoming levels of CVDs or affect the likely date of termination and/or replacement of the U.S. protective measure targeted at the Canadian hog/pork industry. We simply assume that other countervailable hog/pork programs would remain exactly the same as they are currently, thereby leaving some room for political discussions between the two countries.¹ Be that as it may, the assumed level of U.S. CVDs on Canadian hog shipments under this scenario, which are found in Appendix N, can be perhaps viewed as a rather pessimistic limit estimate of this factor for the foreseeable future.

In this chapter we therefore examine the results and implications of having the whole

Canadian hog industry under a complete tripartite program, while keeping in mind the above-mentioned condition concerning the presumed existence of continued U.S. CVDs on Canadian hog shipments throughout the forecasting period.

SELECTED IMPACTS

Hog production and marketings

In the case of a coast-to-coast tripartite option for the 1986-91 period, national marketings would remain approximately equal to the forecast line under the status quo during 1986, 1987 and the first quarter of 1988 (Figure 22.1). Then it would exceed the base scenario by about 1.2% from the second quarter of 1988 to the first quarter of 1989. It then would fall below the base scenario level during the latter part of the period by a relative margin, which would increase from the third quarter of 1989 to the first quarter of 1991.

National changes in pork production under this scenario would be marginal and would come almost equally from eastern and western Canada (Table 22.1). But decreases in hog marketings in the first portion of the downturn in the hog cycle, which might start unfolding in the third quarter of 1988 would be greater in western Canada than in eastern Canada. But the fall in total marketings in the latter part of the simulated period from the second quarter of 1989 to the first quarter of 1991 would be more severe in absolute but not in relative terms in eastern Canada than in western Canada (Table 22.2). Overall, the most significant relative contraction in hog marketings would come from the Atlantic provinces, Saskatchewan, British Columbia and Quebec, in declining order. This is intuitive, since going to tripartite with no phasing out would mean giving up more generous programs.

Price of hogs and cash receipts

The national average hog price would display relatively little differences from the status quo, as expected under previously explained simulated production and marketings results (Figure 22.2). The highest price difference would occur during the subperiod from the third quarter of 1989 to the first quarter of 1991 when the

national average is simulated to be a little less than 1% above what it would likely be under current stabilization programs.

The full tripartite option, however, would produce farm cash receipts 1.5% below those of the base run for the subperiod extending from the fourth quarter of 1988 to the first quarter of 1991 (Figure 22.3). Some attention has therefore to be given to the reasons why such discrepancies are forecast for this factor. By splitting total farm cash receipt into two groups, namely those received from the market on the one hand and those resulting from net stabilization payments on the other hand, one can see that there would indeed be two adjustment subperiods during the next five years under this option (Table 22.3).

First, there is a transition subperiod extending from the first quarter of 1987 to the third quarter of 1988, during which total cash receipts would remain about the same as they are under status quo (Table 22.3, Part A). Stabilization payments show a very slight difference between full tripartite and status quo scenarios over this subperiod only because it is a period of no payment. Since the tripartite premium would be less than the relevant provincial premiums, as a result, cash receipts from stabilization would be less negative, thereby being equivalent to an increase in net stabilization payment.

Second, there is a subperiod lasting from the fourth quarter of 1988 to the first quarter of 1991 during which total cash receipts simulated for the hog industry would be slightly less than those

under status quo (Table 22.3, Part B). A very minor part of this discrepancy can be imputed to lower cash receipts from the market sales. The largest part of it would come from reduced stabilization payments compared with the status quo scenario. In total, net stabilization payments received by producers under complete tripartite during this whole period would be equal to \$34.8 million, compared with \$102.7 million under the comparable status quo forecast.

The provinces in which hog producers would be most severely affected by reduced stabilization payments, relatively speaking, are the Atlantic provinces, B.C., Quebec and Saskatchewan. Quite to the contrary, producers groups from Manitoba, Ontario and Alberta would be better off, because of the small increase in price which would result in small increases in total cash receipts under complete tripartite, compared with the status quo forecast.

OTHER IMPACTS

Other effects of complete tripartite, compared with status quo, would be negligible. The value of exports during the latter part of the period would be slightly more. Shifts of receipts from one Canadian region to another would be negligible, since shifts in hog production from one region to another strictly because of the change from the present range of stabilization programs to full tripartite, would be very marginal, even as late in the early 1990s.

TABLE 22.1 AVERAGE QUARTERLY PRODUCTION OF PORK UNDER STATUS QUO AND FULL TRIPARTITE OPTIONS, 1986-91

Status quo	Full tripartite	Difference	
		Volume (million pounds)	Proportion (%)
<i>From 1988 Q2 to 1989 Q1:</i>			
Western Canada	166.2	166.0	-0.2
Eastern Canada	362.7	363.4	0.7
CANADA	529.0	529.4	0.4
<i>From 1989 Q2 to 1991 Q1:</i>			
Western Canada	159.4	158.5	-0.9
Eastern Canada	356.6	355.4	-1.2
CANADA	515.9	513.9	-2.0

TABLE 22.2 HOG MARKETINGS, QUARTERLY ESTIMATES, UNDER STATUS QUO AND FULL TRIPARTITE OPTIONS, 1986-91

	Status quo	Full tripartite	Difference	
			Volume	Proportion
		(thousand head)	(%)	
<i>From 1988 Q2 to 1989 Q1:</i>				
British Columbia	92.8	93.1	+0.3	+0.3
Alberta	537.8	537.9	+0.1	+0.02
Saskatchewan	209.4	207.5	-1.9	-0.9
Manitoba	458.0	458.8	+0.8	+0.2
Western Canada	1 297.9	1 297.3	-0.6	-0.05
Ontario	1 213.5	1 213.7	+0.2	+0.002
Quebec	1 227.7	1 237.9	+10.2	+0.8
Atlantic provinces	153.1	152.0	-1.1	-0.7
Eastern Canada	2 594.3	2 603.5	+9.2	+0.3
CANADA	3 892.2	3 900.8	+8.6	+0.2
<i>From 1989 Q2 to 1991 Q1:</i>				
British Columbia	88.8	84.6	-4.2	-4.7
Alberta	519.9	520.3	+0.4	+0.08
Saskatchewan	200.0	191.7	-8.3	-4.2
Manitoba	428.9	429.8	+0.9	+0.2
Western Canada	1 237.6	1 226.4	-11.2	-0.9
Ontario	1 170.3	1 170.8	+0.5	+0.04
Quebec	1 172.1	1 159.6	-12.5	-1.1
Atlantic provinces	146.8	139.4	-7.4	-5.0
Eastern Canada	2 489.3	2 469.8	-19.5	-0.8
CANADA	3 726.9	3 696.2	-30.7	-0.8

TABLE 22.3 AVERAGE TOTAL CASH RECEIPTS UNDER STATUS QUO AND FULL TRIPARTITE OPTIONS, 1986-91

	Status quo	Full tripartite	Difference			
			Volume	Proportion		
		(\$ million)	(%)			
<i>From 1986 Q1 to 1988 Q3:</i>						
From the market						
British Columbia	123	123	0.0	0.0		
Alberta	671	671	0.0	0.0		
Saskatchewan	261	258	-3.0	-1.1		
Manitoba	594	594	0.0	0.0		
Western Canada	1 649	1 646	-3.0	0.0		
Ontario	1 684	1 684	0.0	0.0		
Quebec	1 713	1 716	+3.0	+0.2		
Atlantic provinces	213	212	-1.0	-0.5		
Eastern Canada	3 609	3 612	+3.0	0.0		
CANADA	5 258	5 258	0.0	0.0		

(continued)

TABLE 22.3 AVERAGE TOTAL CASH RECEIPTS UNDER STATUS QUO AND FULL TRIPARTITE OPTIONS, 1986-91 (Concluded)

	Status quo	Full tripartite	Difference	
			Volume (\$ million)	Proportion (%)
From stabilization programs				
British Columbia	2.0	0.7	-1.8	n.a.
Alberta	1.3	1.8	+0.3	n.a.
Saskatchewan	4.8	0.7	-4.1	n.a.
Manitoba	0.27	1.37	+1.1	n.a.
Western Canada	8.3	3.9	-4.4	n.a.
Ontario	2.7	3.5	+0.8	n.a.
Quebec	9.5	9.5	0.0	n.a.
Atlantic provinces	6.2	0.4	-5.8	n.a.
Eastern Canada	18.4	13.4	-5.0	n.a.
CANADA	26.7	17.3	-9.4	n.a.
<i>From 1988 Q4 to 1991 Q1:</i>				
From the market				
British Columbia	105.7	102.1	-3.6	-3.4
Alberta	618.7	622.9	-4.2	-0.7
Saskatchewan	235.4	228.4	-7.0	-3.0
Manitoba	510.4	514.4	+4.0	+0.8
Western Canada	1 470	1 468	-2.0	-0.1
Ontario	1539.6	1 548.8	+9.2	+0.6
Quebec	1546.0	1 543.3	-2.7	-0.2
Atlantic provinces	192.8	185.5	-7.3	-3.8
Eastern Canada	3 278	3 278	0.0	0.0
CANADA	4 748	4 746	-2.0	-0.04
From stabilization programs				
British Columbia	9.4	0.8	-8.6	-91.5
Alberta	4.4	4.6	+0.2	+4.5
Saskatchewan	2.9	1.7	-1.2	-41.4
Manitoba	3.6	3.8	+0.2	+5.6
Western Canada	20.4	10.9	-9.4	-46.3
Ontario	10.6	11.1	+0.5	+4.7
Quebec	53.2	11.4	-41.8	-78.6
Atlantic provinces	18.6	1.4	-17.2	-92.5
Eastern Canada	82.4	23.9	-58.5	-71.0
CANADA	102.7	34.8	-67.9	-66.1

FIGURE 22.1 SIMULATED TOTAL MARKETINGS OF HOGS IN CANADA
UNDER STATUS QUO AND FULL TRIPARTITE OPTIONS, 1986-91

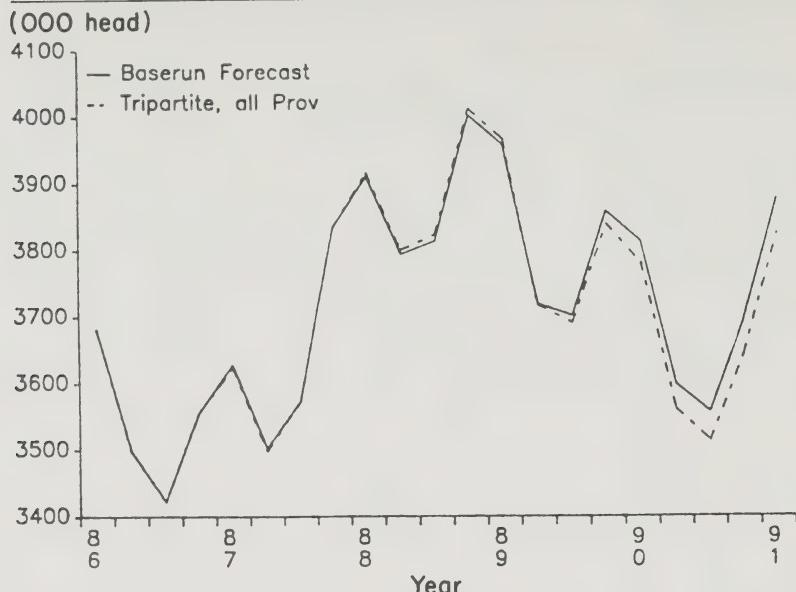


FIGURE 22.2 SIMULATED NATIONAL QUARTERLY WEIGHTED PRICE OF
INDEX 100 HOGS UNDER STATUS QUO AND FULL TRIPARTITE
OPTIONS, 1986-91

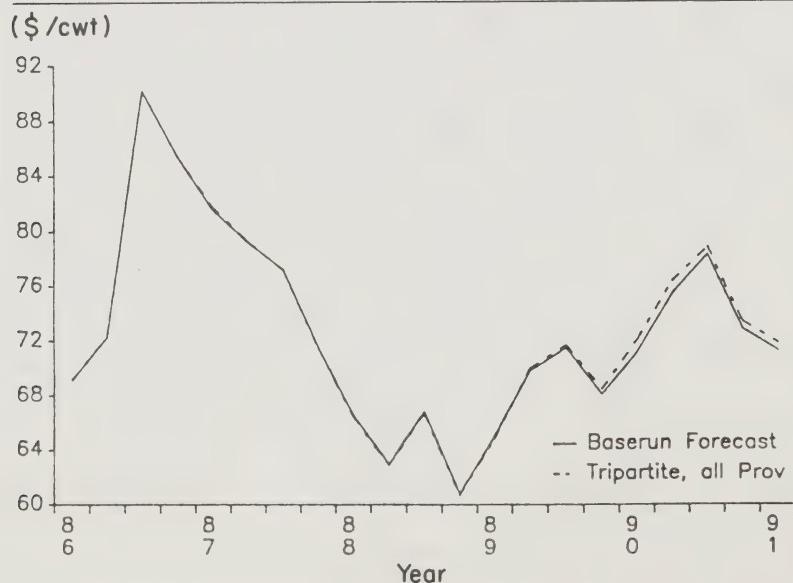
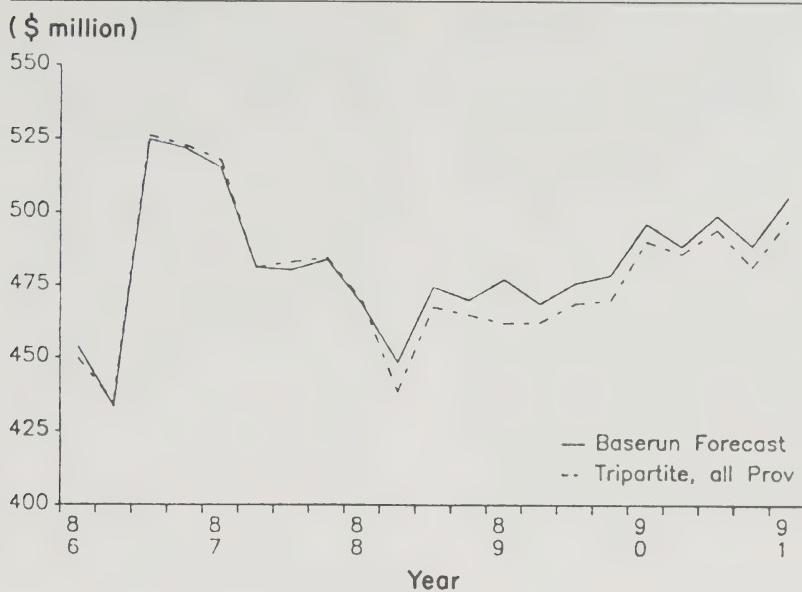


FIGURE 22.3 SIMULATED QUARTERLY FARM CASH RECEIPTS FOR HOGS
UNDER STATUS QUO AND FULL TRIPARTITE OPTIONS,
1986-91



CHAPTER 23: NO INTERVENTION IN THE MARKETPLACE

What might be the policy implications of having the Canadian hog/pork industry compete with its U.S. counterpart under freer market conditions than it has now, from now until the early 1990s? More precisely, what would it be like to compete on the North American market without the safety nets of Canada's present range of stabilization programs and also without the constraints of U.S. countervailing duties on Canadian hog exports?

The purpose of this scenario is to provide a basis for answering such questions. This option, which is more simply referred to as the North American competitive market of no intervention, is compared with that of continuing to compete with both U.S. and other major producing countries along the lines of the present situation, as of the fourth quarter of 1985. It is important to stress the fact that this scenario is coined to be "differently" competitive, strictly by direct reference to trade conditions prevailing on the North American market, and more precisely by direct reference to a different set of national Canadian hog stabilization policies and of U.S. hog/pork import policies. It thus implicitly assumes that the U.S. would make no significant changes in any of its other major national hog/pork policies whatsoever, at least not before the late 1980s.

SELECTED IMPACTS

Hog marketings

In the case of the no intervention option for the 1986-91 forecast period, national hog production and marketings would be significantly lower during most of the period under study, with the exception of a short subperiod extending from the second quarter of 1988 to the first quarter of 1989 (Figure 23.1).

Hog production and marketing would not decrease in two provinces, namely, Manitoba and Ontario (Table 23.1). Simulated hog production and marketings would drop in all other provinces in the following order in terms of relative declines: Saskatchewan (-8.4%), Atlantic provinces (-5.5%), B.C. (-2.8%), Alberta (-1.5%) and Quebec (-0.7%). However, except for Alberta, the decline would be mainly due to the disappearance of the relevant provincial programs, while in

Alberta it would be mainly due to the Alberta Feed Grain Market Adjustment Program. For Ontario and Manitoba, the only loss would be from the tripartite program, which would be compensated for by higher prices due to the elimination of the CVD.

Net exports of hogs and pork

The reduced production simulated to occur in nine provinces under the no intervention option would have an adverse impact on net Canadian hog/pork trade balance (Table 23.2). More precisely, Canada's net international balance of hog/pork trade would decline by 10% in volume. In the case of western Canada, reduction in its trade balance with the U.S. would be the most severe at 18.4%. Some minor decrease of trade from western to eastern Canada would also be found (-2.1%). In the case of eastern Canada, reduction in the net trade balance with the U.S. would be -6.1%. The trade of hogs on the other hand would increase substantially (+30.2%) as a result of the elimination of the CVD.

Price of hogs

The national average hog price would display a significant discrepancy from the status quo price throughout the whole forecast period (Figure 23.2). The extent of price differences for this option over status quo would go from +1.9% in Ontario to +2.1% in Alberta (Table 23.3). Compared with the no intervention scenario over the historical period in 1985, the price change would be much smaller in this scenario. Production adjustment in the first scenario in 1985 would be much bigger, dropping by 5.7%, on average, in the last three quarters of that year. Consequently the surplus of live hogs in eastern Canada, which has an important impact on the hog price in Ontario, would be reduced by about 50% in those same three quarters. So in this scenario not only would the CVD be eliminated, but also the eastern Canada hog surplus would be reduced. In the forecast scenario, the decline in production would not even compensate for the decrease in consumption due to higher price. Consequently, the eastern Canada hog surplus would increase by 24% on average from 1986 to 1991. This is why the price would not increase to the full amount of the tariffs.

Cash receipts from hogs

In this scenario, farm cash receipts for hogs would exceed the status quo during the first part of the period until the end of the first quarter of 1987, then they would fall very significantly below the base run from the first quarter of 1988 to the second quarter of 1989. They would then partly close the gap between the third quarter of 1989 to the first quarter of 1991 (Figure 23.3). But on average the total cash receipts would drop by \$1.5 million per quarter; that is, by -0.36%. Serious conclusions can be drawn from these results. In order to save \$31.5 million for hog producers, various levels of government would spend \$124 million. From a national agricultural policy point of view, if the U.S. can almost nullify totally our stabilization schemes with a CVD, we may as well impose an export duty or go to programs more fully financed by the producers. This is an important research question raised by the present study.

While total Canadian farm cash receipts would rise above those of the base run in the first part of this period, all provincial groups would experience increased sales value under freer

North American trade, with the exception of Saskatchewan producers (Table 23.4). Subsequently while total Canadian receipts would fall significantly below those of the base run in the second subperiod, all provincial groups would suffer from decreased sales values, with the exception of Manitoba producers (Table 23.4). Finally, during the last subperiod, two provincial groups would fare better under freer North American market than under the status quo, namely Manitoba and Ontario, while other provincial groups still would be worse off.

OTHER IMPACTS

Because of the drop in Canadian demand and production under the freer North American market scenario compared with the status quo forecast, the value-added in the pork primary cuts industry in Canada would fall quite significantly (Figure 23.4).

Net stabilization payments received by all provincial groups would of course be drastically reduced, going from \$124.2 million to zero, since stabilization programs no longer would exist under this scenario.

TABLE 23.1 HOG MARKETINGS, AVERAGE QUARTERLY ESTIMATES, UNDER STATUS QUO AND NO INTERVENTION OPTIONS, 1986-91

	Status quo	No intervention	Difference	
			Volume (thousand head)	Proportion (%)
British Columbia	83.9	87.4	-2.5	-2.8
Alberta	506.7	499.1	-7.6	-1.5
Saskatchewan	196.6	180.1	-16.5	-8.4
Manitoba	433.7	438.2	+5.5	+1.3
Western Canada	1 226.9	1 204.8	-22.1	-1.8
Ontario	1 163.8	1 162.6	-1.2	-0.1
Quebec	1 176.6	1 168.5	-8.1	-0.7
Atlantic provinces	146.6	138.6	-8.0	-5.5
Eastern Canada	2 487.0	2 469.7	-17.3	-0.7
CANADA	3 713.9	3 674.5	-39.4	-1.1

TABLE 23.2 AVERAGE QUARTERLY NET EXPORTS, BY ORIGIN AND DESTINATION,
UNDER STATUS QUO AND NO INTERVENTION OPTIONS, 1986-91

	Status quo	No intervention	Difference		
			Volume	Proportion	
	(million pounds)			(%)	
<i>Western Canada to:</i>					
Eastern Canada	9.7	9.5	-0.2	-2.1	
U.S.	31.5	25.7	-5.8	-18.4	
Other countries	4.9	4.9	0.0	n.a.	
<i>Eastern Canada to:</i>					
U.S.	68.9	64.7	-4.2	-6.1	
Other countries	18.9	18.9	0.0	n.a.	
<i>Canada to:</i>					
U.S.	100.4	90.4	-10.0	-10.0	
Other countries	23.8	23.8	0.0	n.a.	

TABLE 23.3 AVERAGE PRICE OF HOGS UNDER STATUS QUO AND NO INTERVENTION
OPTIONS, 1986-91

	Status quo	No intervention	Difference	
			Volume	Proportion
	(\$/cwt)			(%)
Alberta	70.8	72.3	1.5	2.1
Saskatchewan	70.2	71.8	1.6	2.3
Manitoba	70.7	72.2	1.5	2.1
Ontario	73.4	74.8	1.4	1.9
CANADA	72.8	74.3	1.5	2.1

TABLE 23.4 AVERAGE QUARTERLY CASH RECEIPTS FROM HOGS UNDER STATUS QUO AND NO INTERVENTION OPTIONS, 1986-91

	Status quo	No intervention	Difference		
			Volume	Proportion	
	(\$ million)			(%)	
<i>From 1986 Q1 to 1987 Q4:</i>					
British Columbia	92.5	91.5	1	1.0	
Alberta	495	508	14	2.8	
Saskatchewan	192	180	-12	-6.3	
Manitoba	439	454	15	3.4	
Western Canada	1 219	1 236	17	1.4	
Ontario	1 247	1 281	34	2.7	
Quebec	1 269	1 301	32	2.5	
Atlantic provinces	159	155	-4	-2.5	
Eastern Canada	2 675	2 737	62	2.3	
CANADA	3 894	3 973	79	2.0	
<i>From 1988 Q1 to 1989 Q2:</i>					
British Columbia	67	61	-6	-9.0	
Alberta	357	348	-9	-2.5	
Saskatchewan	146	130	-16	-11.0	
Manitoba	307	309	2	0.6	
Western Canada	876	848	-28	-3.2	
Ontario	886	876	-10	-1.1	
Quebec	923	887	-36	-3.9	
Atlantic Provinces	122	107	-15	-12.3	
Eastern Canada	1 931	1 869	-62	-3.3	
CANADA	2 808	2 717	-91	-3.2	
<i>From 1989 Q3 to 1991 Q1:</i>					
British Columbia	81	73	-8	-9.9	
Alberta	443	442	-1	-0.2	
Saskatchewan	166	153	-13	-7.8	
Manitoba	362	375	13	3.6	
Western Canada	1 052	1 043	-9		
Ontario	1 103	1 129	26	2.4	
Quebec	1 130	1 113	-17	-1.5	
Atlantic provinces	150	129	-21	-14.0	
Eastern Canada	2 383	2 371	-12	-0.5	
CANADA	3 435	3 414	-21	-0.6	

FIGURE 23.1 SIMULATED TOTAL MARKETINGS OF HOGS UNDER STATUS QUO AND NO INTERVENTION OPTIONS, 1986-91

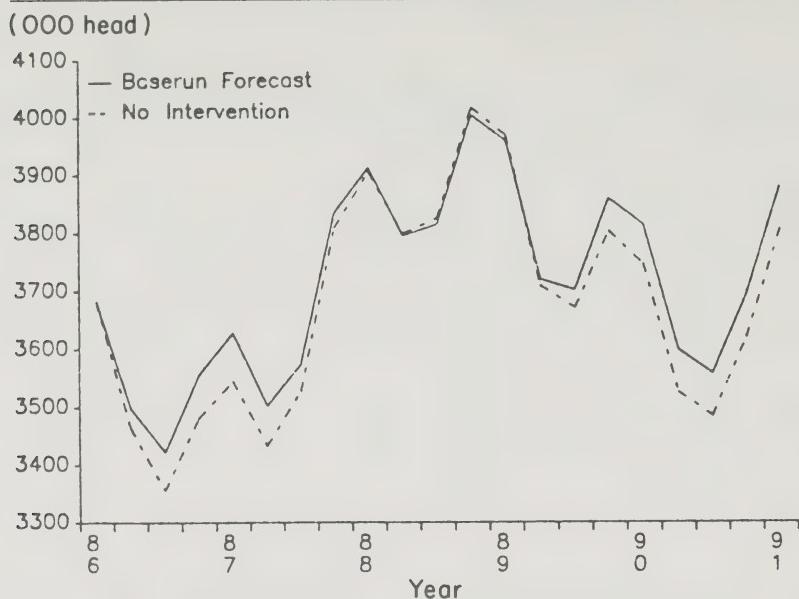


FIGURE 23.2 SIMULATED NATIONAL WEIGHTED PRICE OF INDEX 100 HOGS UNDER STATUS QUO AND NO INTERVENTION OPTIONS, 1986-91

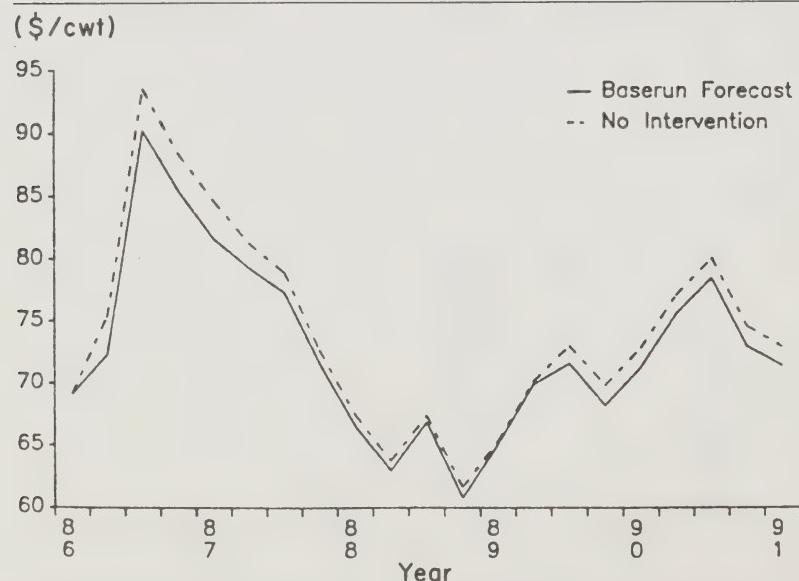


FIGURE 23.3 SIMULATED FARM CASH RECEIPTS FOR HOGS UNDER STATUS QUO AND NO INTERVENTION OPTIONS, 1986-91

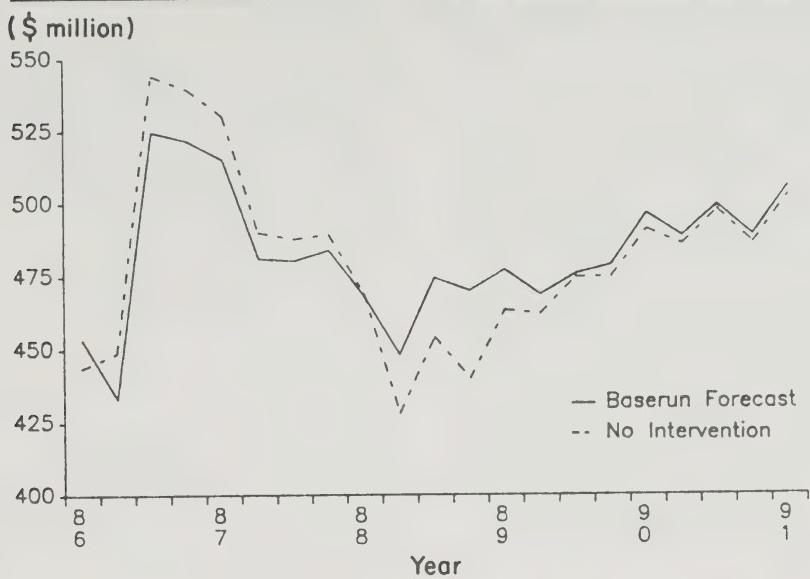
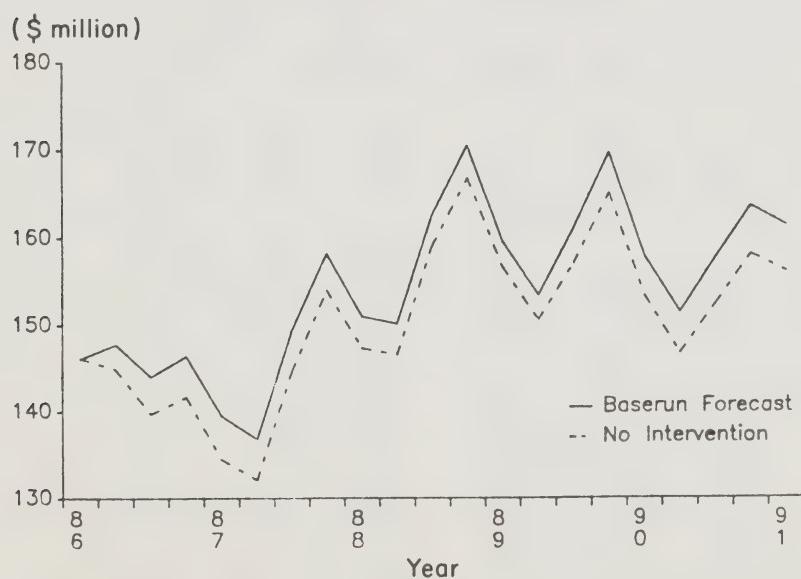


FIGURE 23.4 SIMULATED VALUE-ADDED IN THE PORK PRIMARY CUTS INDUSTRY IN CANADA UNDER STATUS QUO AND NO INTERVENTION OPTIONS, 1986-91



CHAPTER 24: THE PROSPECTS FOR SUPPLY MANAGEMENT ALTERNATIVES, 1986-91

THE SIMULATIONS

The following supply management options are analyzed for the 1986-91 period to determine what the impact would be on the production, marketings, exports, prices and receipts of Canadian hog producers. They are also described more fully in Appendix N.

- **SUP 5.1:** This option assumes exports are set at zero; that is, national production is sufficient to meet national consumption requirements; and imports are set at zero. The production cost is \$78/cwt in the first quarter of 1986, and is adjusted forward by an appropriate cost of production index. Domestic prices are set equal to the cost of production. The base period used to calculate the provincial shares of the national quota extends from the first quarter of 1981 to the fourth quarter of 1985.
- **SUP 6.1:** This option assumes exports are equivalent to 10% of national production. Domestic price is set equal to the \$78/cwt production cost. The overall price received by the hog producer would be a blended price comprised of \$78/cwt (the domestic price) for 90% of the production, and the equivalent of a U.S. price (adjusted for handling and transportation costs) for the remaining 10% of the production.
- **SUP 11.1:** All assumptions for this option are similar to those used for supply management option SUP 6.1, except the production cost (and accordingly domestic hog prices), which is set at \$70/cwt.
- **SUP 12.1:** All assumptions for this option are similar to those used for supply management option SUP 6.1, except the production cost (and domestic price), which is set at \$85/cwt.
- **SUP 7.1:** Under this option, exports are set at a level equivalent to 25% of Canadian hog production. Production cost (and domestic price) is set at \$78/cwt. The blended price received by Canadian hog producers is comprised of the domestic price on 75% of the production and the U.S. price (adjusted for transportation costs) on the remaining 25% of the Canadian hog production.

- **SUP 8.1:** The assumptions associated with this option are similar to supply management option SUP 7.1. However, the overall blended price is set equal to the U.S. price adjusted for appropriate transportation costs.
- **Base 2.1:** The Base 2.1 option is used as the reference point for the analysis of the various supply management options. The Base 2.1 option is based on all existing stabilization programs, the CVD on hogs and the Alberta feedgrain program.

THE RESULTS

Impact on hog marketings

In no case would the production and marketing of hogs under the various supply management options exceed the base period forecast Base 2.1 (Table 24.1). By far the largest contraction in production for the 1986-91 period would occur in western Canada (Table 24.2) because of the base period chosen. Indeed, the least contraction in hog production and marketings would occur in Quebec where, in fact, production would actually increase under supply management option SUP 7.1, while all other provinces would show a reduction.

Net exports of hogs and pork

Under the supply management options SUP 6.1, SUP 11.1, SUP 12.1, SUP 7.1 and SUP 8.1, exports to other countries from eastern Canada (primarily Quebec and Ontario) would increase from the base period amount of 18.9 million pounds to a high of 50.8 million pounds. Under the latter two options, exports to the U.S. from eastern Canada would also expand (Table 24.3).

At the same time, the exports of hogs from western to eastern Canada would increase significantly, particularly under supply management options SUP 7.1 and SUP 8.1 (Table 24.3). It is to be noted, however, that exports from western Canada to the U.S. and other countries are set at zero for all the supply management options. It is assumed in these scenarios that if exports from the West are set at zero, then any exports from Canada would come from eastern Canada, because that region would have the highest surplus, due to the base period chosen.

Price of hogs

With the exception of a brief period covering the last half of 1986 and the first half of 1987, prices under the supply management options would exceed the price established during the 1986 base period (Table 24.4 and Figures 24.1 to 24.4). By far the highest price would occur under supply management option SUP 12.1. This high price, however, would not guarantee the highest receipts to hog producers, as is noted later.

While the price established under the supply management option SUP 8.1 would exceed the base price throughout the entire period, it is to be noted that this price would match very closely the movements in the projected base period price (Figures 24.1 to 24.4). It will be recalled that the price in option SUP 8.1 is set equal to the U.S. price for hogs with appropriate adjustment for handling and transportation costs.

Cash receipts from hogs

Only two of the various supply management options, SUP 7.1 and SUP 8.1, would yield receipts in excess of the base option, Base 2.1. It is to be noted that the option SUP 12.1, with the highest price, would actually produce receipts below those of the base option. The option SUP 5.1, with zero exports, would produce the lowest receipts.

It can be concluded that the volume of exports and consequently production would be more critical than price in influencing the income of hog producers. In general, the income gained from selling the extra hogs into a highly price elastic export market (the U.S.) would tend to outweigh the income produced through the higher prices and restricted production under most of the supply management options.

It will be noted from the results in Table 24.6 that a proportionately greater reduction in receipts would occur in western Canada compared with eastern Canada for several of the supply management options, due to the base period chosen for the analysis.

TABLE 24.1 HOG MARKETINGS, AVERAGE QUARTERLY ESTIMATES, UNDER STATUS QUO AND SUPPLY MANAGEMENT OPTIONS, 1986-91

	Status quo Base 2.1	Supply management					
		SUP 5.1	SUP 6.1	SUP 11.1	SUP 12.1	SUP 7.1	SUP 8.1
(thousand head)							
British Columbia	89.86	66.34	73.66	75.54	72.04	88.39	87.75
Alberta	506.71	338.11	375.40	384.96	367.13	450.48	447.22
Saskatchewan	196.58	132.38	146.98	150.72	143.74	176.37	175.10
Manitoba	433.74	276.44	306.92	314.74	300.16	368.31	365.64
Western Canada	1 226.89	813.27	902.95	925.95	883.06	1 083.55	1 075.71
Ontario	1 163.77	842.58	935.50	959.33	914.89	1 122.60	1 114.49
Quebec	1 176.58	886.76	984.55	1 009.63	962.86	1 181.46	1 172.92
Atlantic provinces	146.60	108.18	120.11	123.17	117.46	144.13	143.09
Eastern Canada	2 486.95	1 837.53	2 040.17	2 092.12	1 995.22	2 448.20	2 430.50
CANADA	3 713.83	2 650.80	2 943.13	3 018.08	2 878.28	3 531.75	3 506.22

TABLE 24.2 DIFFERENCES IN AVERAGE QUARTERLY HOG MARKETINGS UNDER STATUS QUO AND SUPPLY MANAGEMENT OPTIONS, 1986-91

	Status quo Base 2.1	Differences from status quo					
		SUP 5.1	SUP 6.1	SUP 11.1	SUP 12.1	SUP 7.1	SUP 8.1
(thousand head)							
British Columbia	89.86	-23.51	-16.20	-14.32	-17.82	-1.47	-2.10
Alberta	506.71	-168.60	-131.32	-121.76	-139.59	-56.24	-59.49
Saskatchewan	196.58	-64.20	-49.60	-45.86	-52.84	-20.20	-21.48
Manitoba	433.74	-157.30	-126.82	-119.00	-133.58	-65.43	-68.10
Western Canada	1 226.89	-413.62	-323.90	-300.94	-343.83	-143.34	-151.17
Ontario	1 163.77	-321.18	-228.26	-204.44	-248.87	-41.16	-49.28
Quebec	1 176.58	-289.81	-192.02	166.95	-213.72	4.89	-3.65
Atlantic provinces	146.00	-38.43	-26.50	-23.44	-29.14	-2.48	-3.52
Eastern Canada	2 486.95	-649.42	-446.78	-394.82	-491.73	-38.75	-56.45
CANADA	3 713.83	-1 063.03	-770.71	-695.76	-835.55	-182.08	-207.62

TABLE 24.3 AVERAGE QUARTERLY NET EXPORTS, BY ORIGIN AND DESTINATION, UNDER STATUS QUO AND SUPPLY MANAGEMENT OPTIONS, 1986-91

	Status quo Base 2.1	Supply management					
		SUP 5.1	SUP 6.1	SUP 11.1	SUP 12.1	SUP 7.1	SUP 8.1
(million pounds)							
<i>Western Canada to:</i>							
Eastern Canada	9.69	1.97	14.42	14.60	14.26	39.48	39.17
U.S.	31.48	0	0	0	0	0	0
Other countries	4.89	0	0	0	0	0	0
<i>Eastern Canada to:</i>							
U.S.	68.93	0	0	0		76.12	75.70
Other countries	18.88	0	42.28	43.13	41.53	50.75	50.47
<i>Canada to:</i>							
U.S.	100.40	0	0	0	0	76.12	75.70

TABLE 24.4 AVERAGE PRICE OF HOGS UNDER STATUS QUO AND SUPPLY MANAGEMENT OPTIONS, 1986-91

	Status quo Base 2.1	Supply management					
		SUP 5.1	SUP 6.1	SUP 11.1	SUP 12.1	SUP 7.1	SUP 8.1
Alberta	70.79	79.50	79.56	71.52	86.59	79.65	80.11
Saskatchewan	70.25	79.50	79.56	71.52	86.59	79.65	80.11
Manitoba	70.73	79.50	79.56	71.52	86.59	79.65	80.11
Ontario	73.37	79.50	79.56	71.52	86.59	79.65	80.11
CANADA	72.78	79.50	79.56	71.52	86.59	79.65	80.11

TABLE 24.5 AVERAGE QUARTERLY CASH RECEIPTS FROM HOGS UNDER STATUS QUO AND SUPPLY MANAGEMENT OPTIONS, 1986-91

	Status quo Base 2.1	Supply management					
		SUP 5.1	SUP 6.1	SUP 11.1	SUP 12.1	SUP 7.1	SUP 8.1
(\$ million)							
British Columbia	11.46	9.12	10.13	9.29	10.84	12.18	12.14
Alberta	61.69	46.48	51.64	47.33	55.25	62.05	61.88
Saskatchewan	23.99	18.20	20.22	18.53	21.63	24.29	24.22
Manitoba	52.75	38.00	42.22	38.69	45.17	50.73	50.59
Western Canada	149.89	111.79	124.22	113.84	132.89	149.25	148.83
Ontario	154.12	121.10	134.57	123.44	143.85	161.68	161.24
Quebec	158.15	127.46	141.63	129.91	151.39	170.16	169.69
Atlantic provinces	20.51	15.55	17.28	15.85	18.47	20.76	20.70
Eastern Canada	332.80	264.11	293.47	269.20	313.71	352.60	351.63
CANADA	482.67	375.90	417.69	383.04	446.60	501.84	500.47

TABLE 24.6 DIFFERENCES IN AVERAGE QUARTERLY CASH RECEIPTS UNDER STATUS QUO AND SUPPLY MANAGEMENT OPTIONS, 1986-91

	Status quo Base 2.1	Supply management					
		SUP 5.1	SUP 6.1	SUP 11.1	SUP 12.1	SUP 7.1	SUP 8.1
(\$ million)							
British Columbia	11.46	-2.34	-1.33	-2.17	-0.62	0.72	0.68
Alberta	61.69	-15.22	-10.05	-14.37	-6.44	0.36	0.18
Saskatchewan	23.99	-5.80	-3.77	-5.46	-2.36	0.30	0.23
Manitoba	52.75	-14.75	-10.52	-14.05	-7.57	-2.02	-2.16
Western Canada	149.89	-38.10	-25.67	-36.05	-17.00	-0.64	-1.06
Ontario	154.12	-33.01	-19.55	-30.68	-10.27	7.56	7.12
Quebec	158.15	-30.70	-16.52	-28.24	-6.76	12.00	11.54
Atlantic provinces	20.51	-4.96	-3.23	-4.66	-2.04	0.25	0.19
Eastern Canada	332.80	-68.67	-39.30	-63.58	-19.07	19.82	18.85
CANADA	482.67	-106.77	-64.98	-99.63	-36.07	19.17	17.80

TABLE 24.7 AVERAGE QUARTERLY VALUE-ADDED IN THE PRIMARY PORK CUT INDUSTRY UNDER STATUS QUO AND SUPPLY MANAGEMENT OPTIONS, 1986-91

	Status quo Base 2.1	Supply management					
		SUP 5.1	SUP 6.1	SUP 11.1	SUP 12.1	SUP 7.1	SUP 8.1
(\$ million)							
Western Canada	48.75	32.00	35.54	38.54	32.96	42.65	44.42
Eastern Canada	105.46	75.66	84.02	91.13	77.93	100.86	105.04
CANADA	154.20	107.66	119.56	129.67	110.90	143.51	149.47

FIGURE 24.1 ASSUMED TOTAL COST OF PRODUCING HOGS UNDER STATUS QUO AND SELECTED SUPPLY MANAGEMENT OPTIONS, 1986-91

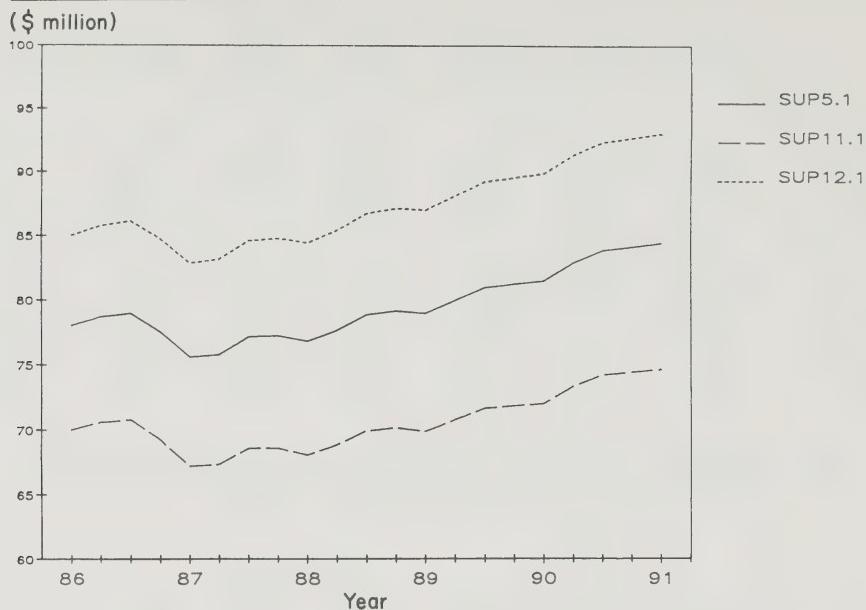


FIGURE 24.2 NATIONAL WEIGHTED PRICE OF INDEX 100 HOGS UNDER STATUS QUO AND SUPPLY MANAGEMENT OPTIONS, 1986-91

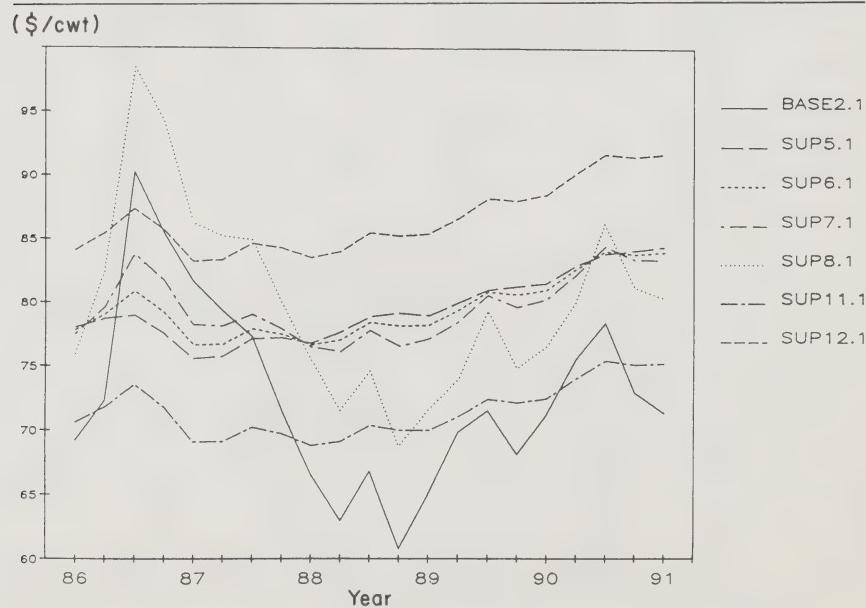


FIGURE 24.3 MARKETING OF HOGS UNDER STATUS QUO AND SUPPLY MANAGEMENT OPTIONS, 1986-91

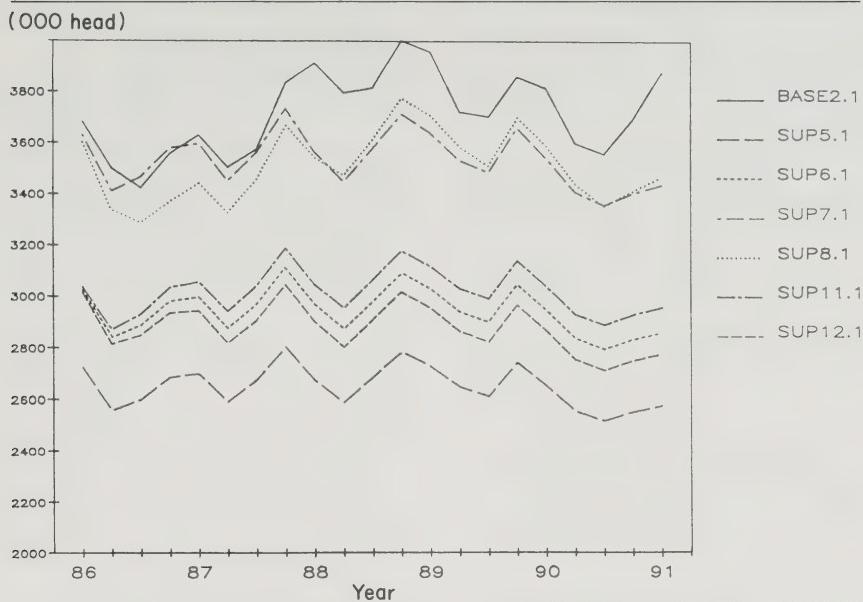
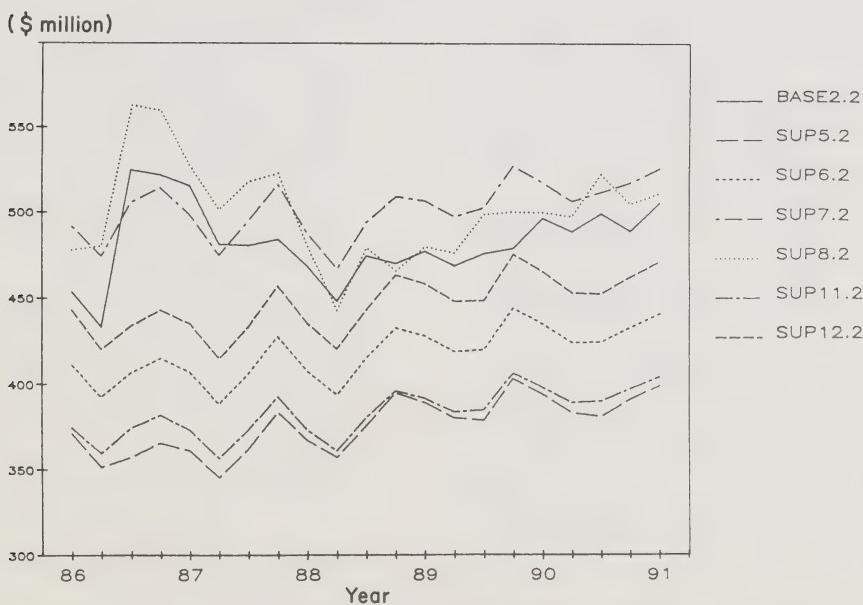


FIGURE 24.4 FARM CASH RECEIPT FOR HOGS UNDER STATUS QUO AND SUPPLY MANAGEMENT OPTIONS, 1986-91



CHAPTER 25: INDEXING CANADIAN TO U.S. PRICES

Canadian hog cycles are so closely related to those of the U.S. that the subperiods of low and/or high market returns occur simultaneously in the U.S. and Canada. This in turn implies closely coinciding subperiods of reduced and/or reduced market returns. Precisely because of is, the idea of linking both markets via some formalized nexus for continental basis pricing has been discussed seriously during the last two decades. But it is only recently that a major group of producers, namely the Manitoba hog producers, have made explicit a suggested way for indexing of Canadian to U.S. prices in order to perhaps determine prices paid to Canadian producers in direct reference to U.S. market conditions (see Appendix O).

Other hog producers group, such as the Ontario Hog Producers' Marketing Board and the Ontario Hog Producers' Association, make use of "home-made" U.S. conversion tables to monitor their prices with direct reference to U.S. prices, but their internal reference formula has never been the object of a proposal for formal price-setting mechanisms in the rest of Canada (OHPA and OPPMB, 1986).

A specific analysis of the impacts of having this kind of a price indexing formula extended to Canadian production and trade from coast to coast would be required, however, in order to examine with great rigor its widespread and perhaps very serious implications for all other major hog marketing characteristics throughout all regions of Canada. This might include some implications concerning the pivotal role of the Ontario market in hog pricing.

Unfortunately, it was not possible to do an extensive analysis of this encompassing scenario within the framework of the present study.

This chapter examines only superficially some of the general conditions under which indexing Canadian to U.S. slaughter hog prices could be accomplished along the line of some fine tuning of stabilization programs according to the specific needs of such a pricing policy. It also spells out some of its most important constraints under the present interprovincial and international hog/pork marketing environment. Finally, it also describes the specific conditions under which it is being discussed in Manitoba.

CANADA-U.S. PRICE RELATIONSHIPS AND INTERCOUNTRY PRICE INDEXING

As already discussed, the potential price range at a point in time for Canadian hogs is the U.S. midwest price plus or minus transfer costs to or from Canada; that is, the difference between the import ceiling and the export floor.

The following general question may be raised concerning this "tunnel-bounded" relationship between Canada and U.S. hog prices. Would there be real major net advantages for the Canadian hog industry to hold variations in Canadian market prices only to the same variations experienced in the U.S. market? According to leading analysts who are barely starting to investigate this question, there does not seem to be any single and/or straightforward answer to it, because its main pros and cons could possibly be very closely tied to the nature and the degree of stabilization programs prevailing in the Canadian hog industry (Martin, 1981).

Perhaps the most precise views expressed thus far by the scientific literature (Martin, 1981) on this very important issue for the whole Canadian hog/pork industry are the following:

If a stabilization program could induce sufficient supply response to maintain Canadian prices at the export floor – instead of varying between the floor and the ceiling, as has been the case – this would add stability. But this would hold variations in Canadian market prices only to the same variations experienced in the U.S. market. (p. 45)

If Canada's stabilization programs were to provide some Canadian producers sufficient protection to discourage herd liquidation, then Canada would be producing more in subsequent periods of high market returns. This would tend to force Canadian prices toward the export floor and either reduce imports (foreign exchange expenditures) or increase exports (foreign exchange earnings). (p. 46)

This concept of formula pricing by indexing Canadian to U.S. hog prices, in combination with slightly modified stabilization programs to create greater inducements to produce during the price throughs, such as that discussed above, suggests some of its potential benefits. Indexation could also reduce the cost of search for price and, in a sense, reduce price risks. It might also, in the long run, reduce some errors in pricing Canadian live hogs relative to their carcass value after slaughter in the U.S. (strictly based on the grade and yield of the carcass). This could perhaps happen if standardization of grading systems between the two countries were to be a by-product of such a pricing system. From a descriptive viewpoint, the latter would seem a logical consequence of the former, but this remains on academic view rather than a conclusion drawn from formal research results.

One serious problem with formally indexing Canadian to U.S. hog prices as the unique price-setting mechanism, for animals produced in any region of Canada at any point in time, would be reconciling its virtues for Canadian hog producers, under specific North American and/or international market conditions, with its constraints under other market conditions. Another serious problem might be reconciling, more strongly than under present price-setting mechanisms, the interest of all hog producing groups with those of the pork processing industry, while trying to increase the competitiveness of the latter with its U.S. counterpart.

Major switches from being a net hog/pork importer to being a net exporter, as being happened in the Canadian hog/pork trade with the U.S. between 1975 and 1986, would most certainly put such a rigid pricing mechanism to a very serious test, on that matter as well as on other grounds. In this context, an obviously important question is the potential of such a mechanism, perhaps in combination with modified stabilization policies, to facilitate the elimination of U.S. CVDs on Canadian-U.S. hog trade in the immediate future. This is indeed an important question to which the present study does not provide a straightforward answer.

CONTINENTAL FORMULA PRICING AS AN ALTERNATIVE

In 1971, the Manitoba Hog Marketing Commission was replaced with the Manitoba Hog Producers' Marketing Board. Instead of pursuing

the objective of establishing a more competitive market system for hogs as a top priority, the board placed increased emphasis on countervailing power in the marketplace (Gilson, 1979). As a result, all hog producers were required to market their hogs through the board. However, as of September 1984, Manitoba producers now are allowed to export live hogs directly, subject to a 1% levy on the gross export value, payable to the board (Carter and Chadee, 1986).

Also in recent years, the Manitoba board has started to suggest a new concept of a "formula-based Canadian hog price" by way of a replacement for the multiple fragmentary but interconnected formula pricing systems already existing in Canada. The basic view behind this concept is follows (MHPMB):

The concept is to establish a minimum National Hog Price for Canada, based on the U.S. market. This could be Omaha, or the U.S.-7 Market average on a one-week-delayed basis. We have maintained for years that basically, Canadian hog prices are a reflection of the U.S. market, so, in this concept, we are saying let's truly tie ourselves to that market.

It has been argued that such a formula for indexing Canadian hog prices to U.S. prices would be equivalent to pricing hogs in Canada similarly to pricing the very same hogs in the U.S. market, but for pork supplies utilized for domestic consumption. It has also been argued that this new concept incorporates at least a partial "two-price" system (MHPMB, 1986, p. 2). A retrospective calculation of its impact on prices paid to producers in Manitoba has been made by the Manitoba board for the January 1983 to February 1986 period (Appendix O).

Of all scenarios simulated in the present study, the one which was labeled SUP 8.1 in Appendix N (that is, under the assumption of all sales at U.S. prices with 25% of Canadian production exported) perhaps comes closest to illustrating, at least vaguely, some of the impacts that such an option might have on the Canadian hog/pork industry.

However, readily available literature contains very little on formal tests of such a type of formula pricing in an international context. It is not clear, for instance, whether sufficient conceptual and empirical knowledge exists to

predict future changes in all major selected factors under such a pricing mechanism in all regions of Canada. For example, under present circumstances, it is rather clear that as long as the magnitude of the difference between the Canada-U.S. price is enough to cover the costs of transportation and handling to U.S. centers, as well as some shrinkage costs, Canadian live hogs and pork will continue to flow to the U.S. (Carter and Chadee, 1986). Are such marketing conditions a facilitating factor or a necessary condition for the establishment of a price indexing system for Canadian hogs in direct reference to prices paid in the U.S. market only? Could such a system last under reversing marketing conditions? If not, under what conditions could it be modified, while taking into

full account the main interests of all groups participating in the development of the Canadian hog/pork industry?

Those questions will somehow have to be raised before refinements and empirical measures are worked out for evaluating the impacts of this option. Some thought will indeed have to be given also to each province discussing this subject, at least with those provinces where prices are used as a basis for the formula pricing systems that already exist in Canada. As pointed out by the proponents of this alternative, it would be extremely important for such a proposal not to have retrograde implications for the pricing mechanisms that already exist in Canada (MHPMB, 1986, p. 2).

Part V

Evaluation of Policy Alternative

CHAPTER 26: SUMMARY AND CONCLUDING OBSERVATIONS

TRANSFORMATION OF CANADA'S HOG/PORK INDUSTRY

The size of the hog operations at the individual farm level has more than tripled during the past 15 years for Canada as a whole. The largest increase in size of operations occurred in Quebec and the least increase in size occurred in Saskatchewan.

During the past 15 years, there has been a significant shift of hog production from western to eastern Canada. Between 1971 and 1985, the proportion of the national hog production in Quebec increased from 17% to 31% while that in the Prairies declined from 45% to 32%.

In terms of provincial self-sufficiency, Manitoba in 1985 produced 212% more pork than it consumed, while British Columbia produced only 45% of its provincial consumption of pork. Quebec increased its pork production from a position where it was supplying only about 70% of its provincial requirements in 1970 to a surplus of 86% in 1985. The Atlantic provinces continue to produce approximately one half of their provincial consumption.

There has been a marked reduction in the traditional seasonal and cyclical fluctuations in hog production in Canada. This change might be explained in part by such factors as the increasing degree of specialization which has taken place, the high investment in fixed capital investment and technological changes in production practices.

Given the relatively "free trade" situation in hogs and pork which has existed between Canada and the U.S., it is not surprising that Canadian hog prices have tended to relate very closely to hog prices in the U.S. Up to 1982, Canadian hog prices tended to be marginally above the corresponding U.S. prices. Beginning in 1982, however, U.S. hog prices (converted to Canadian dollars) began to exceed Canadian hog prices by a considerable margin. During 1984 and 1985, this margin varied from a low of \$6.65/cwt to \$12.53/cwt. There appears to be no obvious explanation for this unusually large price spread between the U.S. and Canada, and it is not at all apparent whether or not the margin will continue.

Hog prices in the Toronto market tend to show a consistent, if at times a variable, positive price margin above all other Canadian hog markets. Only during the period from the last quarter of 1978 through 1979 did the Toronto price drop significantly below the markets in Winnipeg, Saskatoon and Edmonton.

Since 1960, there has been a slow but steady increase in the per capita consumption of pork products, from 52 pounds per capita in 1960 to a peak of 69 pounds per capita in 1980. Since 1980, pork consumption per capita has not declined since 1983, in spite of increased competition from other products, could indicate that higher pork industry revenues may be attainable in the future from a combination of improved product marketing and promotion activities.

Since the 1950s, there has been a significant evolution in the marketing, pricing and processing of hogs in Canada. The evolution has progressed through several phases from the large terminal markets where hogs were sold by "private treaty" and commission agents to provincial marketing boards, teletype pricing and the pooling of prices, and from concerns about lack of bargaining power in the marketplace to the development of a form of "workable competition" between the hog producers and the buyers of their hogs.

There has been a slow but steady increase in the number of slaughtering and processing plants in Canada since 1960. Currently, the industry is most heavily concentrated in Alberta, Ontario, and Quebec.

Technological developments have led to major changes in the structure and nature of the operations of the slaughtering and processing industry in Canada. Old plants have been replaced with modern facilities while other plants have been completely transformed. Highly automated types of processing equipment and techniques have led to the consolidation and centralization of certain kinds of meat processing. Certain pork products are now trimmed, moved to a cut table, inject-cured, conveyed to a smokehouse, then moved through a chill tunnel, automatically formed, sliced, packaged, palletized and warehoused for shipment in less than a day. Cooked meats are now prepared on

the basis of computer-programmed least-cost formulations, conveyed through a micro-wave defrost, chop-ground in 10 000 pound batches, cooked and smoked, sliced, vacuum-packed and placed in a warehouse on the basis of a series of integrated and costly automated equipment that runs continuously.

Technological changes in the slaughtering and processing industry in Canada are far from over. One can expect significant changes in this industry in the years ahead. Indeed, technological developments further up stream in the retail sector of the economy will no doubt have significant implications for both hog producers and the processing and slaughtering industry.

Since 1970, the Canadian hog/pork industry has become more involved in the international market. Exports of pork increased from 62 million pounds in 1970 to 371 million pounds in 1984. Most of the exports have gone to the U.S. or Japan. In 1977, Japan purchased nearly 80% of Canada's pork exports, while in 1984 over 80% went to the U.S.

The fact that well over 20% of Canada's pork production has been sold in the export market during the last two or three years indicates the critical importance of the international market to Canadian hog producers.

At the same time, the "internationalization" of the Canadian hog/pork industry has exposed Canadian hog producers to the economic and political factors associated with the exporting business. Fluctuating exchange rates, import controls, countervailing duties and export subsidies are now a part of the Canadian hog producers' decision-making framework.

The overall expansion of the hog industry in Canada during the past decade has been remarkable. During that period, hog production has almost doubled and it now represents close to 10% of total farm cash receipts in Canada.

The hog/pork industry is an important generator of employment, investment and income in Canada. Well over 30 000 persons are employed directly in the slaughtering and processing industry. When those employed in other sectors which serve this industry are added to the picture, the total number represents a significant part of Canada's employed labor force.

POLICY ISSUES AND CHANGES

One of the first major policy issues confronting Canadian hog producers was related to the lack of

bargaining power in the marketplace. Canadian hog producers resorted to various policy measures in the attempt to develop greater bargaining power with the buyers of their products. These included use of anti-combines legislation to reduce or modify the economic concentration and power of the buyers; use of shipping and selling cooperatives; forward integration into the slaughtering and processing industry through producer cooperative packing plants; and development of compulsory marketing boards.

In the final analysis, it was the development of the compulsory marketing boards which led to a form of "workable competition" in the marketplace for Canadian hog producers.

It is to be noted that Canadian hog producers chose to use the marketing board as an instrument to achieve more competitive prices in the marketplace. Unlike the dairy and feathered products sectors, hog producers have not proceeded to use the ultimate powers of many marketing boards that use supply management and administered pricing.

Rather, hog producers in Canada have attempted to couple the marketing and pricing practices used by their boards with appropriate government price and income stabilization programs to achieve an adequate and stable income for their industry.

While Canadian hog producers have not adopted supply management and administered pricing as a policy for their industry, they have debated the pros and cons of this policy for a number of years. The most critical debate occurred around the original proposal relating to the Farm Products Marketing Agencies Act when it was first introduced in the early 1970s. The original proposal included hogs along with the feathered products as the commodities to be supported through a comprehensive national supply management scheme. Hogs were eventually excluded from this legislation when it was passed in 1972 because the majority of hog producers were not willing to be a part of a national supply management program.

It was at this point that hog producers turned to government for a more effective price and income support program.

The federal government first introduced price stabilization measures for Canadian farmers, including hog producers, through the Agricultural Prices Support Act passed in 1944. This act was replaced with the Agricultural Stabilization Act in 1958.

After a number of years of experience, producers began to press for changes in the act for two major reasons. First, the price support level established under the act was too low to provide farmers with any meaningful level of support. Second, the act did not effectively cope with the producers' increasing level of input costs, i.e., the effect of general inflation in the economy.

In the attempt to cope with the perceived inadequacies of the 1958 ASA, several of the provinces introduced their own price and income stabilization programs for hog producers during the early 1970s.

In 1975 the federal government amended the 1958 ASA with the objective of providing a higher level of support for producers. One of the amendments also permitted "top loading" of the federal program by provincial government programs.

The "top loading" provision under the 1975 amended ASA created considerable discussion and debate between the federal government and the provinces during the ensuing decade. The federal government contended that the "top loading" provision was leading to a fragmentation of the national market and unnecessary competition among the provinces. Several of the provinces argued that the federal program was not effective in coping with the escalating increase in the producers' input costs. Moreover, the provinces were not willing to surrender control over policies relating to sectors within their jurisdictions.

It was out of this extended debate that the idea for the "tripartite" red meat policy was developed.

The debate and discussion around the tripartite proposal eventually led to the further amendment of the Agricultural Stabilization Act in 1985. This amendment provided the basis for the development of a tripartite program for red meat products in Canada. The program called for a phasing out of the provincial programs and the development of one national program based on the cooperation of the federal and provincial governments and the producers affected by the program. To date, several of the provinces have joined the program, while negotiations are continuing with the remaining provinces.

The domestic policy issues relating to the Canadian hog/pork industry were further complicated when the U.S. Commerce Department and the International Trade Commission decided in July 1985 to confirm the countervailing duty which had been imposed earlier on Canadian hog exports to the U.S. The countervailing duty was

set at a level which the U.S. judged to be equivalent to the subsidies paid on the Canadian hogs exported to the U.S.

The countervailing duty on Canadian hog exports has raised a number of questions relating to Canada's domestic agricultural policies and what changes, if any, should be made in these policies to better cope with the emerging conditions in the international marketplace.

THE SEARCH FOR POLICY ALTERNATIVES

Two major developments during recent years have confronted Canadian hog producers with some basic questions about future policy directions for their industry. These are the difficulties involved in attempting to establish a coherent, national price stabilization policy for the Canadian hog industry and the 1985 U.S. countervailing duty on Canadian hog exports to the U.S.

The U.S. countervailing duty has raised a number of basic questions relating to Canada's domestic agricultural policies. What policy adjustments can and should be made if Canada is to have a continuing and unimpeded export of hogs to the U.S.? In what way can Canada reconcile its domestic agricultural policies with its international trade policies? Indeed, when is a subsidy or a stabilization program or a regional development policy of purely domestic concern and when is it of legitimate concern to countries with which Canada trades? Should national production be reduced to match Canadian consumption of pork products, or are there other policies which can and should be adopted to expand export markets for the excess production?

The fundamental policy choice facing Canadian hog producers is this: they can choose the open trade, competitive market route with all the adjustments and consequences associated with that fundamental option; or they can select the protectionist option under which trade is curtailed as a matter of deliberate policy, while national production is geared to the domestic market, with all the implications which accompany that choice.

The second major concern facing Canadian hog producers is the one relating to "national trade." Is Canada to have one "common market" for the production, marketing and pricing of hogs, or are these basic functions to be determined by 10 separate and independent provincial policies? Is it possible to develop a coherent national policy

under the federal form of governance which characterizes the Canadian constitutional and political system? The answers to these questions have far-reaching implications for Canada's domestic policies as well as for Canada's trade policies with other countries.

The search for policy alternatives covers a wide spectrum of possibilities from minimum public intervention in the hog marketing system to policy options involving considerable regulation and control of the industry.

In assessing these various policy alternatives, a number of fundamental considerations need to be kept in mind. Should the Canadian hog industry operate in an "open trade" or a "closed" economy? Should Canada have one "common market" or 10 provincial markets for the production, marketing and pricing of hogs and pork products? What are implications of each of the policy alternatives for relationships with other trading partners and for the general principles underlying the GATT? What are the effects of the various policy alternatives for the hog industry on substitute products such as beef, poultry, meat and fish? What are the public and private costs and the burden of those costs (to taxpayers, consumers and producers) for each of the policy alternatives?

What do Canadian hog producers have in mind for their industry by the end of the present century? Which policy alternative will best achieve those long-run objectives? Whether opportunities and challenges or short-run problems and issues dominate the policy agenda in the 1980s is perhaps the most important question of all.

EVALUATION OF POLICY ALTERNATIVES

There are two possible ways in which an evaluation of policy alternatives confronting the Canadian hog industry can be undertaken. One can apply several policy alternatives to some historical base period and assess the consequences which would have resulted from each of the alternatives. Or one can attempt to anticipate the probable consequences of a number of policy alternatives applied to a projected set of circumstances for some specified future period of time.

Both methods are used in the present study. The historical perspective covers the 1975-85 period. The future perspective includes the 1986-91 period.

The historical perspective, 1975-85

Two major policy alternatives are evaluated from the historical point of view. The first is no intervention in the marketplace, with a fully competitive North American market for hogs and pork. This option assumes the elimination of all government programs and impediments to trade with other countries. It is also assumed that the stabilization programs do not change the nature of the supply response and that payments are anticipated in the quarter that they are triggered.

The second is the application of supply management in the Canadian hog industry. Various supply management options are tested for their probable effect on the Canadian hog industry during the 1975-85 period.

Had the no intervention policy option been applied during the 1975-85 period, the following consequences would likely have resulted. Hog marketings in Canada would have been below levels that actually prevailed during the 1980-85 period. The biggest reductions would have occurred in western Canada, particularly British Columbia and Saskatchewan. Compared with the actual situation (status quo), hog prices would have been somewhat higher for the 1980-85 period. Farm cash receipts from hogs would have been lower under the no intervention option, compared with the status quo, for the 1979-85 period. Net exports of hogs from Canada to the U.S. would have been lower under the no intervention option, compared with the status quo, for the 1980-85 period.

Had various supply management options been applied during the 1975-85 period, the following consequences would likely have resulted. The prices for slaughter hogs under the various supply management options would tend to be below the actual historical price during the earlier part of the 1975-85 period, and above the historical price during the latter part of that period. Even when the supply management option prices rose above the actual historical price during the latter part of the 1975-85 period, this did not translate into higher receipts for Canadian hog producers as a whole. The major effect of the various supply management options was to increase production and cash receipts in western Canada, and to reduce production of hogs and cash receipts in eastern Canada. If provision were made for some export trade under certain of the supply management options, the exports would come from western Canada. Under certain of the options, some of the expanded production in

the Prairies would move to eastern Canada. There would be no exports of hogs or pork from eastern Canada to the U.S. under any of the various supply management options.

The future perspective, 1986-91

Five major policy options are examined under the future perspective framework. The alternatives made are that present conditions and circumstances would prevail through to 1991; that a countervailing duty would be imposed on Canadian pork exports to the U.S.; that all provinces would join the national tripartite program; that there would be a competitive North American market with no trade barriers (no intervention from governments); or that various supply management options would be adopted.

The probable consequences of each of these major policy options as applied to the Canadian hog industry for the 1986-91 period are compared with the base period situation which actually prevailed during the first half of 1986 and which half is projected for the 1986-91 period.

With projection of present conditions and circumstances for the 1986-91 period, expansion in national production would likely continue. Total hog marketings would reach a record high of about 15.5 million head in 1988, followed by some reduction to about 14.7 million head in the late 1980s. The regional shares in total production would remain unchanged from present levels with one third of the hogs produced in the West and two thirds in the East.

Exports of live hogs would account for about 7.5% of national production where pork exports would be equivalent to 23.8% of nationally processed pork commodities. Total farm cash receipts would reach a record high of \$1.96 billion in 1987, but then would fall drastically in 1988 and 1989, before recovering to a little less than the \$2.0 billion mark in 1990.

Total net stabilization payments would be paid out in 1988, 1989 and 1990 and would amount to about \$134.7 million. This is 2.4% of total farm cash receipts from slaughter hogs production between 1988 and 1991.

The national weighted price of Index 100 hogs per year would reach a low of about \$64.30/cwt in 1988.

With a countervailing duty on Canadian pork exports to the U.S. during 1986-91, hog

marketings in all regions of Canada would fall below those projected under present circumstances. National production would likely continue to expand but the peak in marketings projected to be reached in 1988 would then be close to 15.3 million head.

In the West, net exports of hogs and pork products would increase to eastern Canada but exports to the U.S. would drop by about 8 million pounds. In the East, hog exports would be nearly 6.9 million pounds less than those projected under present circumstances.

Hog prices would drop as a result of the reimposition of the countervailing duty on the Canadian pork exports to the U.S.

Cash receipts would be approximately 27% less than those projected for the present situation.

Total net stabilization payments paid out in 1988, 1989 and 1990 would likely climb to about \$154.7 million, which is 12.3% higher than the amount projected for status quo.

If the full tripartite option were in place during 1986-91, expansion in national production would continue. Total hog marketings would reach a peak in 1988, followed by some reduction in the late 1980s.

Regional shares in total production would decline somewhat in western Canada where about 31% of the production would occur, and would increase, correspondingly, to about 69% in eastern Canada.

Hog production and marketings would likely remain approximately equal to the base period during 1986, 1987 and the beginning of 1988. Then volume under the full tripartite option would exceed that in the base period by about 1.2% for almost a year (from early 1988 to early 1989). Then it would start falling below the base period by an increasing margin until the end of the projected 1986-91 period.

Decreases in hog marketings in the first portion of the downturn in the hog cycle, which might start unfolding in the third quarter of 1988, would perhaps be greater in the West than in the East, in contrast to the fall in total marketings in the latter part of the simulated period (1989 first quarter to 1991 first quarter), which would probably be more severe in the East than in the West.

National average hog prices would probably show little differences from the status quo throughout the 1986-91 period.

The full tripartite option would produce farm cash receipts which would be significantly below those of the base run in the subperiod extending from 1988 fourth quarter to 1991 first quarter. The largest part of this decline would come from lowered stabilization payments, compared with the status quo.

Shifts of receipts from one Canadian regional to another world likely be very marginal under the full tripartite option.

If competitive North American hog pork trading market were in place during 1986-91, that is, if there was no intervention from governments, national hog production and marketings would be significantly lower than those for the status quo during most of the period. The exception would be during a short subperiod extending from 1988 second quarter to 1989 first quarter. Expansion in national production would continue, and total hog marketings would reach almost the same record peak in 1988 as under status quo, with about 15.5 million head marketed.

Increased hog production would come from only one province, namely Manitoba, where percentage growth in quarterly marketings, compared with the status quo, might be around 1.3%.

Canada's net balance of international hog/pork trade in volume might decline by 10%. It was assumed that the reduction in international trade balance with the U.S. would be the most severe in the West.

The extent of quarterly price differentials over the status quo option would range from +1.9% in Ontario to +3.5% in Alberta for the entire period.

Farm cash receipts would likely exceed the status quo until the end of 1987 fourth quarter. Then it would fall significantly below the base run from 1988 first quarter to 1989 second quarter. Finally, cash receipts would begin to increase between 1989 third quarter to 1991 first quarter.

Net stabilization payments received by all provincial producers would, of course, be drastically reduced under this scenario, compared with the status quo. It would fall from almost \$125 million to zero, since stabilization programs are presumed to no longer exist under the free North American trade option.

It must be kept in mind that the base period selected for the initial allocation of the national quota under a supply management program will have a fundamental influence on regional

distribution of production in Canada, and on the associated movement of hogs and pork products within Canada and in export trade.

In the present analysis, the initial allocation of the national pork quota is based on the average of the five-year period 1980 first quarter to 1985 fourth quarter, the average situation immediately prior to the assumed introduction of the national supply management program in 1986.

Under the several simulated supply management scenarios for various levels of exports and costs of production, in no case would the forecasts for prospective production and marketings of hogs exceed those projected under the status quo. By far the largest contraction in production for the 1986-91 period would occur in the West. The least contraction in hog production and marketings would occur in Quebec where production in fact would continue to increase, while other provinces would experience reductions of varying degrees.

International hog and pork exports from the West was assumed to drop to zero for all supply management options considered. Under specific circumstances, exports of hogs from the West to the East might be maintained or even increased significantly. International exports from the East would reach various levels depending upon the conditions under which they were assumed to take place. They might even increase significantly if all favorable conditions combine, reaching perhaps a peak of 50.8 million pounds in 1988.

With the exception of a brief subperiod, including the last half of 1986 and the first half of 1987, prices under all supply management options analyzed would exceed the price projected under the status quo option. Higher prospective prices, however, seen under the highest-price-profile supply management option, do not seem to guarantee the highest receipts to hog producers, compared with the status quo.

Only two of the various supply management options examined would likely yield receipts in excess of those projected under the status quo. It can be concluded that volume of exports is more critical than price in influencing the gross incomes of Canada hog producers.

A proportionately greater reduction in the hog producers' income would occur in western Canada, compared with that in eastern Canada, for several of the supply management options.

GENERAL CONCLUDING OBSERVATIONS

Many studies of the Canadian hog/pork industry have focused on major problems and issues confronting the industry.

At times, the immediate concerns and issues have tended to overshadow the fundamental strengths, challenges and opportunities associated with the production, marketing and processing sectors of the Canadian hog/pork system.

The industry is an important part of the rural economy in Canada, and it is very significant from an employment and industrial point of view in many of the larger urban centers of Canada. During the past 15 years, a large and important export trade in hogs and pork products has been developed with the U.S. and Japan.

Policies are needed from time to time to deal with immediate and urgent problems. But policies can also be used for long-term strategic planning purposes, especially to take advantage of emerging challenges and opportunities.

There can be no question that the entire shape and character of the Canadian hog industry by the year 2000 will be influenced enormously by the policy decisions made in the 1980s.

Decisions made in the 1920s to establish a premium quality bacon hog influenced policies and programs in the Canadian hog industry for several decades. Decisions taken in the 1950s and 1960s to establish provincial hog marketing boards pointed hog producers in a particular direction and had an immense influence on the production and marketing activities of the Canadian hog industry. Action taken by several hog marketing boards in the 1970s to open up the Japanese market for Canada's pork products provided opportunities for expansion that had not been anticipated or seriously discussed only a few years before.

What do Canadian hog producers have in mind for their industry by the end of the present century, and which policy alternative will best achieve these long-run objectives? These are the basic questions and challenges which need to be kept in mind in assessing the various policy alternatives examined in this report.

Appendices

APPENDIX A: EXCERPT FROM THE GENERAL GROUP-STUDY CONTENT AGREEMENT

SCOPE OF WORK

The study would be designed to:

- analyze trends in Canadian hog and pork marketing, including recent evolution of regional production patterns, international trade volume and destinations, regional pricing and interregional trade flows;
- examine future national and regional prospects for the hog and pork sector over the intermediate term, under current policies and economic environment and a range of potential international market conditions and production costs;
- identify the national and regional impact on producers, processors, and consumers of the following marketing arrangements:
 - no intervention (i.e., no stabilization program and current policy on international trade),
 - stabilization - tripartite national program or under a combination of national and provincial programs,

- supply management (including alternatives to current agency approach with cost of production pricing and quotas on products),
 - other means to improve pricing and marketing efficiency; and
- examine the compatibility of alternative marketing arrangements with respect to provincial, national and international market regulations.

DATA REQUIREMENTS

The study would draw upon Agriculture Canada's econometric model (FARM) to provide some quantitative estimates of program impacts. Trade and commodity policy specialists in Agriculture Canada and in External Affairs could provide basic information on domestic marketing legislation and international legal aspects of General Agreement on Tariffs and Trade (GATT) and foreign reactions to supply management programs. A list of the background material is to be provided by Agriculture Canada and the Canadian Pork Council.

APPENDIX B: BACKGROUND STUDIES REQUIRED FOR THE PROJECT

- Analysis of expenditures and policy changes relating to the hog/pork industry under the Agricultural Stabilization Act 1975-85:
 - major problems and issues
 - policy changes
 - expenditures
 - interactions with provincial programs.
- Analysis of provincial policies and programs relating to the hog/pork industry 1975-85:
 - evolution of policies by province
 - basis of revenue
 - expenditures
 - annual deficits if applicable
 - top loading and bottom loading provisions.
- International trade in hog/pork products 1975-85 and Canadian exports and imports:
 - exports and imports by country as related to Canada
 - types of sales (contracts, spot sales, etc.)
 - impact of U.S. countervailing duties (CVDs) on Canadian hog/pork exports
 - Canadian countervailing actions on EEC pork exports to Canada
 - implications of trade barriers with reference to GATT.
- Hog/pork price differentials between Canadian markets and U.S. markets (Edmonton, Winnipeg, Toronto versus Omaha, St. Paul, Sioux City, etc.) 1975-85: price differentials converted to strictly comparable basis in Canadian dollars; considerations would involve exchange rates, transportation costs, shrinkages, etc.
- Method of pricing hogs in the provinces 1975-85.
- Hog/pork price differentials among major Canadian markets 1975-85: Vancouver, Edmonton, Winnipeg, Toronto, Montreal, Atlantic provinces.
- Interprovincial movement of hog/pork products 1975-85:
 - production by province
 - consumption by province
- interprovincial movement of live hogs and/or pork products (primary cuts).
- Status of integration and contract farming in the Canadian hog/pork industry.
- Financial status of Canadian hog producers 1975-85.
- Structure and rationalization of the hog/pork packing and processing industry in Canada 1975-85.
- Structure and rationalization of the pork packing and processing industry in the U.S. 1975-85.
- Potential markets for Canadian pork products in the U.S., particularly in the states of New York and California:
 - past experience
 - opportunities for the near future.
- Policy analysis of the Japanese domestic and import programs relating to pork products.
- FARM modeling and impact analysis relating to various marketing, pricing and policy alternatives:
 - completely free trade and competitive market: no public intervention
 - supply management and administered pricing parallel to the program for feathered products, with consideration of the pros and cons of the alternatives
 - analysis of the status quo conditions prevailing 1975-85
 - prices, production and trade implications of the 1985 tripartite model
 - domestic price supports (on domestically consumed pork equivalent) and "competitive prices" for hog and pork exports; a two-price system and implications for the GATT (particularly Article XVI)
 - Canadian hog/pork pricing policy based on a tied relationship to U.S. hog/pork prices
 - implications for the Canadian hog/pork industry on basis of U.S. CVDs on Canadian hog exports continuing for five years and on the basis of U.S. CVDs on exports of both Canadian hog and pork products continuing for five years.

APPENDIX C: U.S. AND CANADIAN CUSTOMS TREATMENT AND HEALTH AND SANITARY REGULATIONS APPLIED IN THE HOG/PORK INDUSTRY AS OF JULY 1985 (USITC, 1985)

U.S. TARIFF TREATMENT

Virtually all imports of live swine enter the United States under TSUS item 100.85 and come from countries receiving the column 1 rate of duty,¹ which for this tariff item is free. A few minor breeds of swine are eligible for entry under the provision for purebred animals (included in item 100.01). Theoretically, swine can enter under certain provisions for animals temporarily exported (TSUS items 100.03 and 100.04). However, these provisions are seldom used, inasmuch as item 100.85 provides for duty-free entry. Thus, there is no incentive to use other provisions of the TSUS.

U.S. imports of fresh, chilled or frozen pork are classified under item 106.40. These imports also enter free of duty from countries receiving the column 1 rate of duty.

HEALTH AND SANITARY REGULATIONS OF THE USDA AND OTHER U.S. TRADE POLICY FACTORS

Certain health and sanitary regulations with respect to U.S. imports of live swine and pork are administered by the USDA to protect the U.S. livestock industry and to ensure an adequate supply of safe meat for the consumer. For example, sources of imports of pork are limited to those countries that have been declared free of swine and pork are administered by the USDA to protect the U.S. livestock industry and to ensure an adequate supply of safe meat for the consumer. For example, sources of imports of pork are limited to those countries that have been declared free of rinderpest and foot-and-mouth diseases² by the U.S. Secretary of Agriculture. Canada has been declared free of such diseases, but because of the existence of these diseases in many of the pork producing countries of Europe, pork imported from these countries is usually cooked, canned or cured. Under the Federal Meat Inspection Act, only plants in those countries

having meat inspection systems with standards at least equal to those of the USDA program are permitted to ship meat to the United States.

Currently there is a controversy between the United States and Canada involving chloramphenicol, a therapeutic drug authorized for use in Canada but banned in the U.S. by the U.S. Food and Drug Administration. Some U.S. swine farmers contend that unless the drug is found to be safe, U.S. imports of live swine and pork from Canada should be prohibited, because residues of the drug in pork could present a hazard to human health and could detract from the image of the pork industry. Canadian government officials indicate that authority for use of the drug in Canada is under review.

On May 13, 1985, the government of South Dakota reportedly banned the slaughter of food animals that have been treated with chloramphenicol. The following day the governments of Iowa and Nebraska reportedly took steps to ban live swine that have been treated with chloramphenicol. Other states are alleged to be considering similar actions. Although the legality of these actions is currently being challenged, the immediate effect has been to discourage U.S. packers and pork buyers from purchasing Canadian swine and pork.

During 1984, approximately 8.1 million pounds of pork – about 1% of U.S. imports – were refused entry for the following reasons: unsound cans; adulteration with extraneous material; short weight; failure to meet composition standards; undercooked; and biological residues. Approximately 3.3 million pounds of that was from Canada (0.9% of total pork imports from that country).

CANADIAN CUSTOMS TREATMENT AND HEALTH AND SANITARY REGULATIONS

Live swine imported into Canada from the United States enter duty free; fresh, chilled, or frozen pork, which account for the bulk of U.S. exports of pork to Canada, also enter duty free.

Canadian imports of live swine and pork from the United States are not subject to quantitative limitations, but imports of live swine from the United States are subject to regulations regarding Pseudorabies (Aujesky's disease), a contagious disease of swine and cattle found in the United States. Swine imports are permitted only from herds that are certified as having been free of Pseudorabies for one year, and imported

animals even then must be quarantined for 30 days. The general effect of the regulations has been to limit U.S. exports of live swine to Canada to a small number of high-value breeding animals. These regulations also apply to Canadian swine that were exported to the United States and presented for reentry into Canada, thus precluding their return.

APPENDIX D: IMPORT AND EXPORT OF AGRICULTURAL COMMODITIES AND OF HOG/PORK PRODUCTS: STATISTICS OF MAJOR TRADE FLOWS

TABLE D.1 WORLD AGRICULTURAL PRODUCTION AND EXPORTS OF MAJOR AGRICULTURAL PRODUCTS, AND EXPORTS AS SHARE OF PRODUCTION IN PARENTHESES, SELECTED YEARS 1965-77

Product	1965	1970	1975	1977	Annual rate of growth
					(%)
(million tonnes)					
Wheat					
Production	267.4	318.4	354.7	386.6	3.1
Exports	50.1	50.2	67.3	66.0	2.3
% share	(18.7)	(15.8)	(19.0)	(17.1)	
Barley					
Production	106.3	139.6	150.0	173.1	4.1
Exports	8.1	10.4	12.5	12.8	2.9
% share	(7.6)	(7.4)	(8.3)	(7.4)	
Maize					
Production	227.8	261.3	324.3	349.7	3.6
Exports	25.1	29.2	51.3	57.1	7.1
% share	(11.0)	(11.2)	(15.8)	(16.3)	
Soybeans					
Production	36.4	46.5	69.7	77.5	6.5
Exports	7.0	12.6	16.5	20.0	9.1
% share	(19.1)	(27.1)	(23.6)	(25.8)	
Beef					
Production	33.1	40.3	44.3	46.2	2.8
Exports	1.5	2.1	2.4	2.9	5.6
% share	(4.4)	(5.1)	(5.3)	(6.3)	
Pork					
Production	31.5	37.1	42.5	43.8	2.6
Exports	0.4	0.7	1.0	1.1	8.8
% share	(1.4)	(1.9)	(2.4)	(2.5)	
Mutton					
Production	6.0	7.1	5.5	5.6	-0.6
Exports	0.6	0.7	0.7	0.8	2.4
% share	(9.3)	(10.2)	(12.2)	(14.4)	

TABLE D.2 JAPAN'S DOMESTIC SUPPLY, CONSUMPTION, AND IMPORTATION OF MEAT AND BEEF PRODUCTS, AND SELF-SUFFICIENCY RATES, 1955-77

Food	Year	Domestic production (1)	Foreign trade		Changes in inventory (4)	Domestically available supply (1 + 2 - 3 - 4)	Self-sufficiency rate (%)
			Imports (2)	Exports (3)			
(million tonnes)							
Meats ^a	1955	356	1	0	0	357	100
	1960	376	6	0	0	382	98
	1965	1 016	118	34	0	1 100	92
	1970	1 626	220	15	0	1 831	89
	1975	2 056	728	3	+79	2 702	76
	1977	2 552	769	3	-11	3 329	77
Average annual growth (%)		7.17	769.0	-	-	9.32	-
Beef	1955	135	1	0	0	136	99
	1960	141	6	0	0	147	96
	1965	190	11	0	0	201	95
	1970	265	33	0	0	298	89
	1975	327	91	0	+11	407	80
	1977	371	132	0	+6	497	75
Average annual growth (%)		2.75	132.0	-	-	3.65	-

^a includes whale meat

TABLE D.3 JAPANESE IMPORTS OF PORK, FRESH, CHILLED OR FROZEN BY SOURCE, VOLUME AND VALUE, 1980-84

	Volume					Value				
	1980	1981	1982	1983	1984	1980	1981	1982	1983	1984
(million pounds)										
Canada	66	94	96	92	65	112	165	173	164	108
United States	66	86	72	78	51	117	158	141	153	86
Taiwan	37	44	43	73	112	61	77	72	122	181
Sweden	3	18	36	43	17	6	31	57	71	29
EC total	65	161	52	65	178	109	280	83	110	293
Denmark	64	160	42	39	166	108	278	68	65	274
All other EC	1	1	10	29	12	1	2	15	45	19
All other	2	2	12	16	8	3	6	16	25	17
Total	239	405	311	367	431	408	717	542	645	714

TABLE D.4 PORK IMPORTS,^a BY SELECTED COUNTRIES AND AREAS, 1980-84

	1980	1981	1982	1983	1984
(million pounds)					
United States	546	538	608	695	943
Japan	342	578	445	525	628
EC total	3 715	3 655	3 997	4 204	4 162
United Kingdom	1 177	1 116	1 246	1 213	1 235
West Germany	934	990	1 023	1 074	1 074
France	637	633	686	739	756
Italy	758	657	785	805	705
Greece	35	51	79	132	143
Belgium/Luxembourg	64	82	60	126	128
The Netherlands	90	108	99	93	88
Ireland	18	20	20	24	33
Denmark	-	-	-	-	-
Net EC total ^b	368	269	267	236	271
Spain	20	7	13	9	22
Portugal	-	-	7	15	4
USSR	265	254	254	220	298
Other NMEs	57	203	141	86	243
Poland	24	185	128	64	220
Czechoslovakia	13	13	11	11	11
Romania	-	-	-	11	11
Yugoslavia	20	4	-	-	-
Hungary	-	-	2	-	-
East Germany	-	-	-	-	-
Bulgaria	-	-	-	-	-
Canada	43	44	32	43	32
Sweden	11	11	11	20	9
Mexico	24	35	24	2	2

^a carcass weight equivalent basis^b excludes intra-EC trade

TABLE D.5 PORK EXPORTS^a, BY SELECTED COUNTRIES AND AREAS, 1980-84

	1980	1981	1982	1983	1984
(million pounds)					
EC total	3 955	4 286	4 131	4 636	4 810
Denmark	1 506	1 607	1 627	1 706	1 676
Netherlands	1 327	1 448	1 433	1 554	1 676
Belgium/Luxembourg	611	659	494	675	736
West Germany	139	176	179	243	247
United Kingdom	51	57	71	117	154
France	115	130	110	117	139
Italy	86	97	104	106	99
Ireland	121	110	115	119	84
Net EC total ^b	604	719	489	666	862
Spain	2	4	2	2	2
Total NMEs	1 124	1 210	1 071	1 254	1 285
East Germany	461	600	463	463	463
Hungary	203	209	260	276	331
Romania	132	198	110	187	165
Poland	216	106	88	174	143
Yugoslavia	64	75	106	77	95
Czechoslovakia	7	7	22	55	66
Bulgaria	42	15	22	22	22
China	n.a.	366	507	546	564
Taiwan	53	46	44	73	115
Canada	260	248	360	347	386
Sweden	75	88	126	117	165
United States	246	301	209	214	160

^a carcass weight equivalent basis^b excludes intra-EC trade

TABLE D.6 LIVE SWINE TRADE AMONG MAJOR EXPORTING AND MAJOR IMPORTING COUNTRIES, BY COUNTRY OF ORIGIN, 1980-84

	1980	1981	1982	1983	1984	Major importing group and/or country	
						Importer	Share
							(average 1980-84)
(thousand head)							
Belgium	207.4	167.4	158.0	184.0	14.8 ^a	EC countries	99.8
West Germany	62.3	52.3	49.4	59.7	57.5 ^a	EC countries	99.8
France	47.0	28.5	23.0	29.5	24.2 ^a	EC countries	99.9
United Kingdom	61.2	121.9	129.2	115.0	61.0 ^a	EC countries	99.5
The Netherlands	632.0	594.9	610.6	637.9	496.7 ^a	EC countries	99.9
Denmark	36.7	38.4	18.2	23.5	12.8	EC countries	99.7
U.S.	16.3	24.1	31.8	23.3	14.3	Mexico	25.5
Canada							
TOTAL	1 061.9	1 027.5	1 008.2	1 071.9			
All major exporters except Canada	-	-	-	-			
Canada's share among major exporters (%)	-	-	-	-			

^a January to September

TABLE D.7 LIVE SWINE INVENTORIES IN SELECTED COUNTRIES AND AREAS, 1981-83

	1981	1982	1983	1984 ^a	1985 ^b
(thousand head)					
China	305.430	293.700	300.780	298.540	306.090
Taiwan	4.820	4.826	5.182	5.888	6.561
EC total	78.136	78.497	79.146	79.371	78.130
West Germany	22.552	22.310	22.478	23.449	23.473
The Netherlands	10.087	10.193	10.590	11.008	11.300
France	11.658	11.795	11.670	11.274	10.137
Italy	8.928	9.015	9.132	9.187	0.025
Denmark	9.696	9.785	9.504	9.016	8.960
United Kingdom	7.770	7.910	8.211	7.769	7.625
Belgium/Luxembourg	5.099	5.149	5.186	5.254	5.270
Greece	1.250	1.250	1.304	1.361	1.319
Ireland	1.096	1.090	1.071	1.053	1.020
Spain	10.983	10.696	11.682	12.124	12.000
Portugal	3.620	3.600	2.999	2.848	2.900
USSR	73.382	73.303	76.700	78.700	77.800
Other NMEs	71.046	72.287	70.656	73.279	74.210
Poland	18.734	19.081	17.564	15.858	17.214
Romania	11.542	12.464	12.644	14.347	14.777
East Germany	12.871	12.869	12.107	13.057	13.333
Hungary	8.330	8.296	9.035	9.843	9.800
Yugoslavia	7.867	8.431	8.370	9.337	8.681
Czechoslovakia	7.894	7.302	7.126	7.070	6.860
Bulgaria	3.808	3.844	3.810	3.767	3.676
United States	64.462	58.698	54.534	56.694	54.043
Mexico	16.480	17.150	16.460	13.137	12.329
Japan	10.065	10.040	10.273	10.423	10.776
Canada	10.190	10.035	10.070	10.380	10.160
Sweden	2.723	2.716	2.677	2.705	2.730

^a preliminary^b forecast

Source: USITC Publication 1794.

APPENDIX E: JAPANESE PORK IMPORT SYSTEM

Because of the gap between Japanese and world prices, Japan must artificially adjust domestic supply in order to maintain hog production profitability while trying to minimize increases in retail prices (Carter and Chadee, 1986).

The Japanese government operates a price stabilization system for pork, which is designed to encourage a high level of domestic production by the maintenance of prices within a specified range. An essential part of this problem is the system of tariffs used to ensure that imported pork is not offered at prices that would disrupt the stabilization scheme.

JAPAN'S STABILIZATION POLICY

The principal feature of the domestic stabilization system are the upper and lower stabilization prices, which are established by the government and, in effect, constitute a market range for domestic pork.

During periods when prices fall below the lower limit, the Ministry may take action to buoy up the price by financing the storage of pork by agricultural cooperatives, and/or by instructing the Livestock Industry Promotion Corporation (LIPCO) to purchase stocks of domestic pork and to hold them in storage. Stocks held under either arrangement may be released slowly to the trade when prices return to the specified market range.

On the other hand, when prices exceed the upper limit, the system encourages importation of additional supplies by waiving the duty.

As of April 1, 1986, the upper stabilization price is 760 yen/kg for skinned carcasses and 705 yen/kg for scalded carcasses. The lower stabilization price is set at 540 yen/kg for skinned carcasses and 500 yen/kg for scalded carcasses.

IMPORT SYSTEM

The pork import system is based on the upper and lower stabilization prices for skinned carcasses (see above), plus a further designation known as the Standard Import Price (SIP), which is the average of these two stabilization prices. Under this system, the regular duty which is assessed on pork imports (currently 5.0% *ad valorem*, CIF basis) may be increased or waived, depending on the unit value of imports relative to the three designated price levels.

The following examples illustrate the working of the system when the objective is to maintain prices and to encourage imports. In both instances, the current designated prices of 540 yen/kg as the lower stabilization price, 760 yen/kg for the upper stabilization price, and 650 yen/kg for the standard import price are utilized.

TO MAINTAIN STANDARD IMPORT PRICE

Skinned carcasses

In Figure E.1, Example 1 covers a situation in which the CIF price of pork exceeds the standard import price (650 yen/kg). In this instance, with a landed cost of 730 yen/kg for skinned carcasses, the product is subject to the regular tariff of 5.0% or 36.5 yen/kg. In Example 2, in which the CIF cost of pork at 500 yen/kg is below the lower stabilization price, the product is subject to a differential tariff to bring the price up to the standard import price of 650 yen/kg. Thus the differential tariff is 150 yen/kg.

Pork cuts

The SIP for cut pork is calculated on an assumed yield of 75% of carcass pork; thus the current applicable SIP is 866.67 yen/kg (650 yen/kg divided by 0.75). In Figure E.2, in Example 1 where the CIF value is 1000 yen/kg and above the SIP, a duty of 5.0% is imposed. In Example 2 where the CIF value is 750 yen/kg, a differential tariff (of 116.67 yen/kg) is imposed to bring the value up to SIP.

TO ENCOURAGE IMPORTS

Under certain market conditions, the government may wish to encourage imports and, to accommodate such action, provision is made for waiver of duties. When this occurs, a new element known as the proclaimed price is introduced for major cuts, i.e., loin, shoulder, bellies, ham, tenderloin, trimmings as well as skinned and scalded carcasses. This proclaimed price is the value (yen/kg) at which duty will be waived. This will occur under two conditions:

- when CIF value exceeds the proclaimed price (in which case all duty is waived);
- when the CIF value plus duty exceeds the proclaimed price (under these circumstances, the amount in excess of the proclaimed price is waived).

The following examples illustrate the duties that will apply under various circumstances when a proclaimed price is in effect. In these examples, the proclaimed price is assumed to be 880 yen/kg for pork loins.

In Figure E.3, in Example 1 the CIF value (1000 yen/kg) exceeds the proclaimed price

(880 yen/kg) for loins and the duty is exempt. In Example 2 the CIF value (850 yen/kg) is below the proclaimed price and a 5.0% duty (42.5 yen/kg) is applied to bring the value up to the proclaimed price; however, the duty in excess of the proclaimed price (12.5 yen/kg) is waived. In Example 3 the CIF value of 830 yen/kg is below the standard import price and the full 5.0% tariff is applied. Example 4 is a situation in which the CIF value of 810 yen/kg is below the 866.67 yen/kg a standard import price. Application of the 5.0% tariff (40.5 yen/kg) is inadequate to bring the value up to the standard import price and under these circumstances, a differential tariff of 56.67 yen is applied.

FIGURE E.1 DETERMINING IMPORT LEVEL FOR SKINNED CARCASS

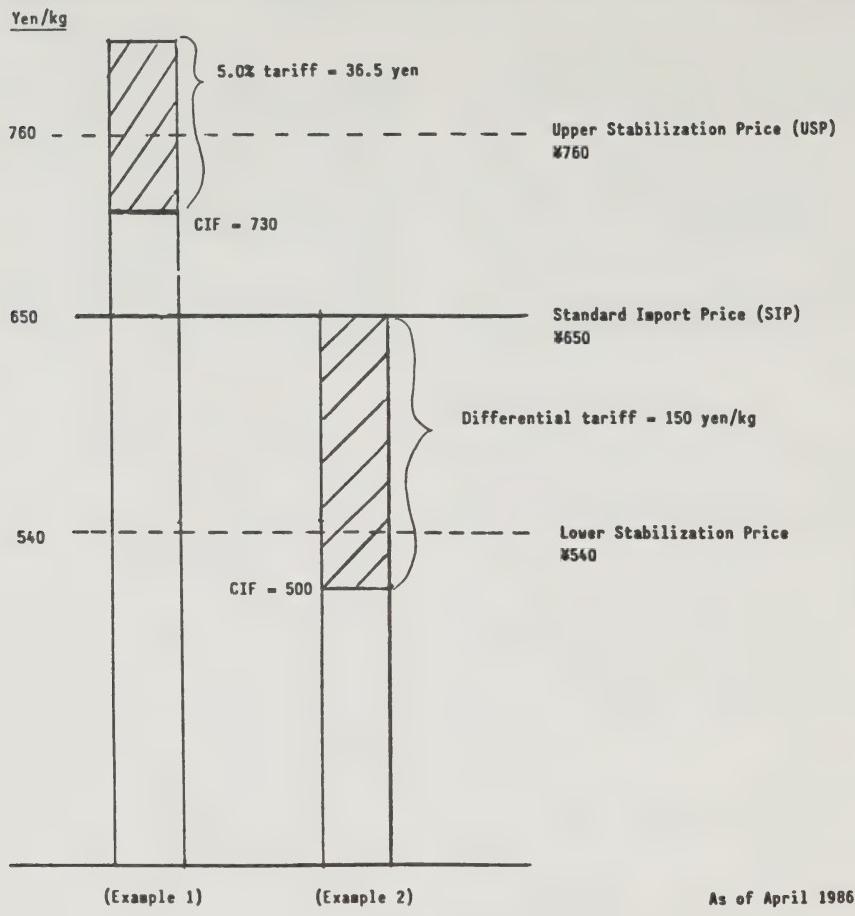
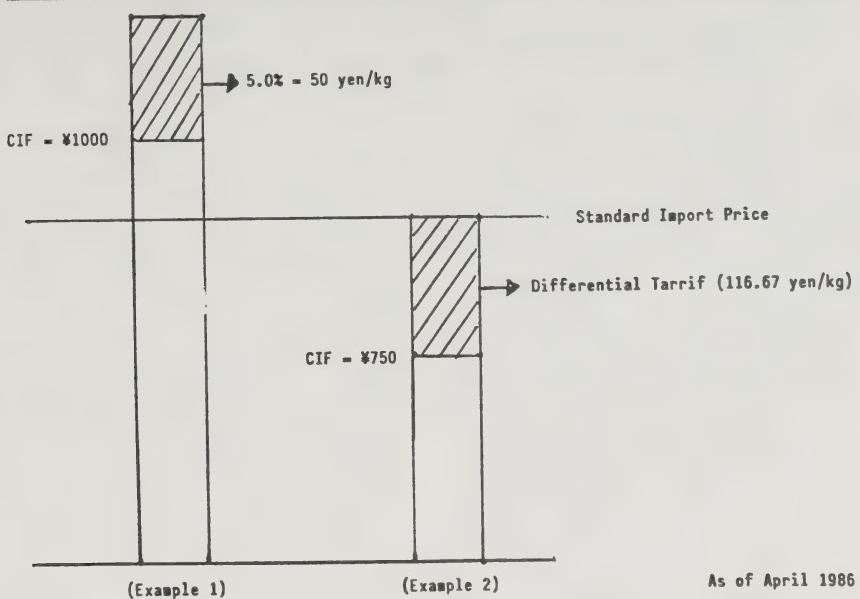
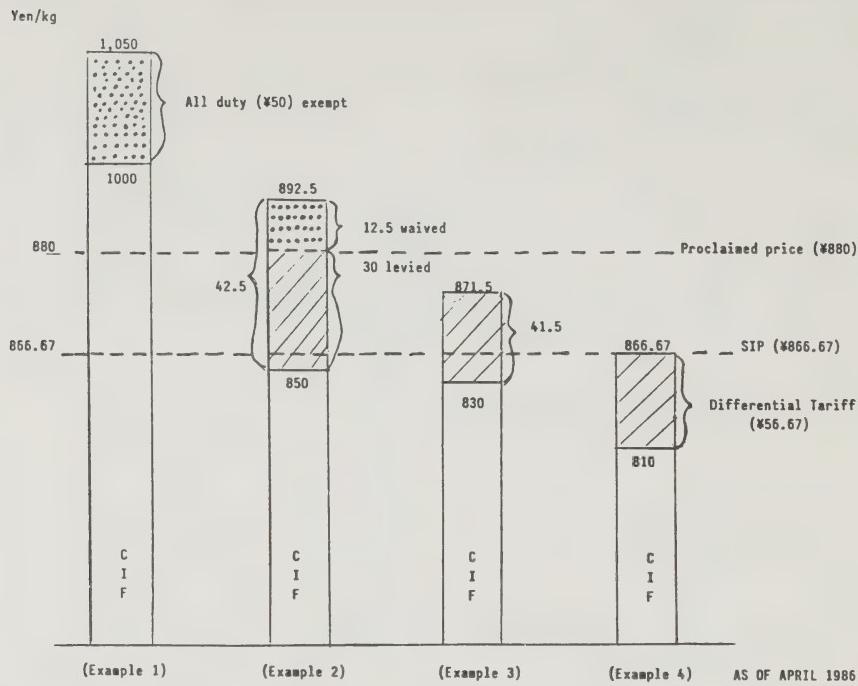


FIGURE E.2 DETERMINING IMPORT LEVEL FOR PORK CUTS



Note: It is apparent that the most desirable price at which pork can be imported is one at which the combination of cif price plus duty equals the SIP. At this level, the amount of duty will be lowest without incurring a differential tariff charge. At current tariff rates and SIP, this value is 825.40 yen (866.67 divided by 1.05).

FIGURE E.3 DETERMINING IMPORT LEVEL FOR PORK CUTS (LOIN)



APPENDIX F: THEORETICAL FRAMEWORK FOR ANALYSIS OF TRANSFER COSTS IN A TWO-PRONGED NET EXPORT MARKET, AND RELATED COMMENTS

In Figure F.1 the demand for pork faced by Canadian producers with unrestricted trade with the U.S. only is illustrated as DD' . Price P_{US} denotes the price of the product in the U.S.; ($P_{US} + tr$) is the U.S. price plus transfer costs from the U.S. to Canada (the import ceiling); and ($P_{US} - tr$) is the U.S. price minus transfer cost from Canada to the U.S. (the export floor).

Parallel to Figure F.1, in Figure F.2 the demand for pork faced by Canadian producers with some level of restricted trade with Japan only (i.e., Canada exporting only to Japan) is in turn illustrated as DJ'' (DD' + part of the net demand deficit that Japan might wish to satisfy in Canada at various price levels). Price P_J denotes the price of the product in Japan; ($P_J + tr$) is the Japanese prices plus transfer costs from the "best" hog exporting foreign supplier to Japan; ($P_J + tr + T_j$) is the same as the above except for the Japanese tariff which is added (it generally does not have any practical meaning whatsoever); ($P_J - tr$) is the Japanese price minus transfer cost from the "best" exporting foreign supplier to Japan (the export floor price for Canada's sales to Japan if Japan had no tariff on pork whatsoever); ($P_J - tr - T_j$) is the same as above except for the included subtraction of the tariff (T_j) imposed on pork entering Japan (export floor price for Canada's sales to Japan with the import duty also considered); and finally ($P_J - tr - T_j - S_j$) which is the same as the above except for the included subtraction of any export subsidies allocated to the exporting firms of the "best" exporting foreign supplier to Japan by the government of such a country (export floor price for Canada's sales to Japan with the export subsidies of trading competitors considered also).

Somewhere between those extremes lies the domestic Japanese wholesale price, which has complexities of its own as seen from Canada (Appendix E).

Import ceiling and export floor prices in Figure F.1 represent the limits of the range in which Canada's price will normally occur relative to that of the U.S. Import ceiling and export floor prices in Figure F.2 in turn represent the limits of the range in which Canada's price will normally occur relative to that of Japan.

The Canadian demand function is represented in Figure F.1 by a broken line above the ceiling

and below the floor as determined with reference to the U.S. market, and horizontal line segments have been drawn in at those two points to indicate that when the price in Canada falls to the point at which Canadian products can compete in the U.S. market, the demand facing Canadian producers becomes the domestic demand plus demand in the U.S. for Canadian pork. Segment CD is usually drawn as a horizontal line in such diagrams, on the assumption that the U.S. market is so large that variations in Canada exports will not affect the U.S. price. This is in itself a debatable assumption, given recent events that tend to indicate that U.S. government authorities are also politically sensitive to "tolerable" degrees of penetration of the U.S. pork and live swine markets by foreign supply.

At the import ceiling, still in Figure F.1, segment AB indicates that when the Canadian price rises to the level at which U.S. pork can compete in the Canadian market, any reduction in Canada supply to a level less than B would be immediately replaced by U.S. imports with no effect on prices. Segment AB is also usually drawn horizontally because of the overwhelming size of the U.S. market. This last assumption probably holds in practice.

The Canadian demand function in Figure F.2 is first represented by the same broken line as in Figure F.1, but as a whole unbroken segment throughout. Part of the net demand deficit that Japan might wish to satisfy in Canada at various price levels is added to it to give JJ'' . The kinked lowest portion of it (that is, $J'J''$) is built under the assumption that "under normal conditions," Canada may expect a more or less fixed share (in absolute terms) of Japanese pork imports. We may be wrong. The highest portion of it (segment JJ') is drawn under the assumption that Japanese pork import demand in Canada is perfectly responsive to price levels in this price range, expands as the Canadian price goes down but stops expanding when it reaches a somehow Japanese-determined Canadian floor price.

This assumption is indeed most crucial for understanding contemporary pork price spreads prevailing on international markets since Japan is such a coveted buyer. But it is extremely difficult to frame this assumption into something close to the real world since "normal conditions" have rarely prevailed during the early 1980s.

FIGURE F.1 DEMAND FOR PORK FACED BY CANADIAN PROCESSORS
WHEN UNRESTRICTED TRADE WITH THE U.S. ONLY

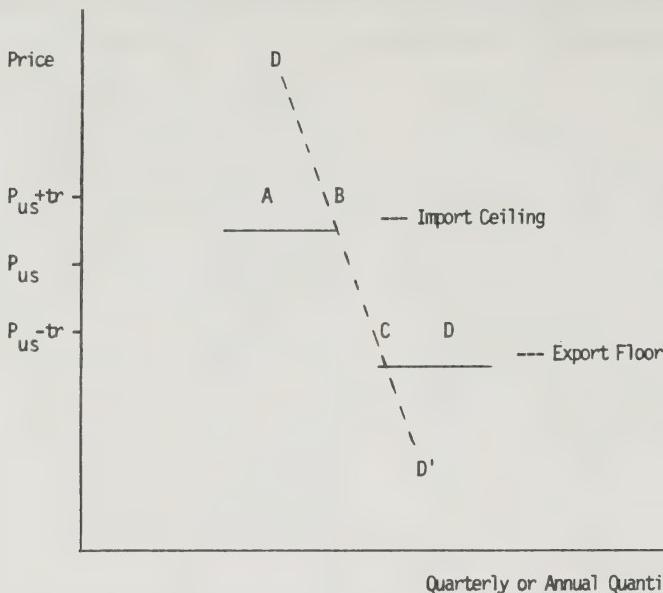
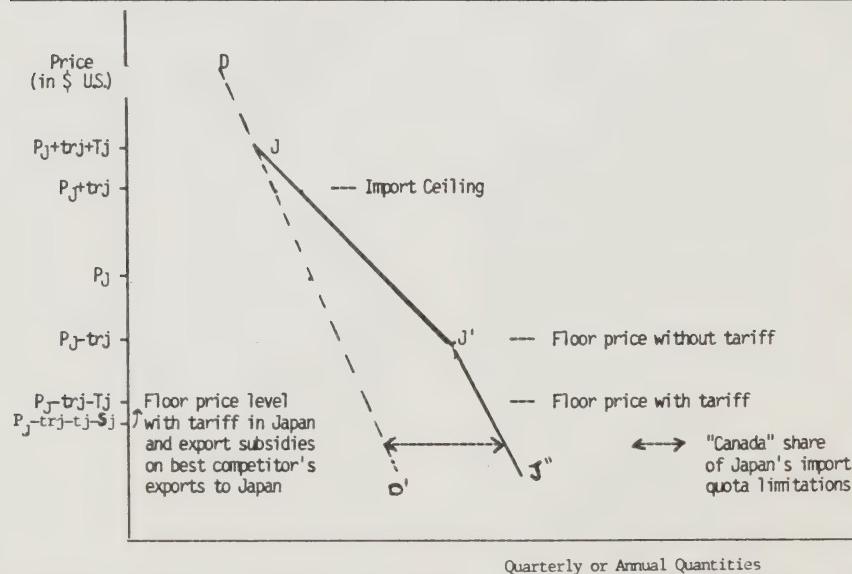


FIGURE F.2 DEMAND FOR PORK FACED BY CANADIAN PROCESSORS
WHEN RESTRICTED TRADE TO JAPAN ONLY



APPENDIX G: LIST OF CANADIAN HOG/PORK PROGRAMS FOUND TO CONFER COUNTERAVAILABLE SUBSIDIES (U.S. DEPT. OF COMMERCE, 1985)

FEDERAL PROGRAM

Hog stabilization payments provided under the Agricultural Stabilization Act.

JOINT FEDERAL/PROVINCIAL PROGRAM

Record of performance program.

PROVINCIAL PROGRAM

Stabilization programs

- British Columbia Swine Producers' Farm Income Plan
- Manitoba Hog Income Stabilization Plan
- New Brunswick Hog Price Stabilization Program
- Newfoundland Hog Price Support Program
- Nova Scotia Pork Price Stabilization Program
- Prince Edward Island Price Stabilization Program
- Quebec Farm Income Stabilization Insurance Program

- Saskatchewan Hog Assured Returns Program.

Other programs

- New Brunswick Swine Assistance Program
- New Brunswick Loan Guarantees and Grants under the Livestock Incentives Program
- New Brunswick Hog Marketing Program
- Nova Scotia Swine Herd Health Policy
- Nova Scotia Transportation Assistance Program
- Ontario Farm Tax Reduction Program
- Ontario (Northern) Livestock Programs
- Prince Edward Island Hog Marketing and Transportation Subsidies
- Prince Edward Island Swine Development Program
- Prince Edward Island Interest Payments on Assembly Yard Loan
- Quebec Meat Sector Rationalization Program
- Quebec Special Credits for Hog Producers
- Saskatchewan Financial Assistance for Livestock and Irrigation.

APPENDIX H: OVERVIEW OF THE EEC HOG/PORK MARKET AND TRADE POLICIES, AS OF DECEMBER 1985

INTERNAL MEASURES

Internal market support arrangements for pork provide for the removal of surplus supplies from the market either through intervention measures or through private storage aid schemes. Two indicator prices, the basic price and the reference price, are used to gauge the relative strength or weakness of the market and determine the need for public support. The basic price, a type of target price, was established as part of the annual European Community (EC) farm price package and applies for a 12-month pork marketing period beginning November 1 of each year. EC officials attempt to set the basic price at a level that will stabilize the market and not cause surpluses. This price corresponds to the average production costs for a standard quality swine carcass (Commercial Grade 2) under the EC swine carcass classification scheme. Basic price levels (in European Currency Units) set for pork by the EC Commission over the last five marketing years are shown in Table H.1.

The reference price for pork is the actual internal EC market price for Grade 2 carcasses calculated from a weighted average of prices within the different member countries. The national prices are weighted based on swine population in each country. As shown in Figure H.1, when the reference price falls and is likely to remain below 103% of the established basic price, market support measures may be adopted.

If authorized, public intervention agencies may remove surplus carcasses, bellies, and backfat from the market at a "buy-in" price that is standard throughout the Community. This form of direct market support has not been utilized in the EC since 1971. However, private storage aids are used regularly, especially during the spring when EC pork prices tend to be at their lowest or when the market has been negatively affected by a disease outbreak. These aids are paid directly by the EC to pork traders who agree to store specific products at their own risk and expense for a certain period (usually four to seven months). The traders can reclaim their product when the storage contract expires. On occasion, the product can be removed early if warranted by market conditions, or if it is to be exported.

Storage aids offered in May 1985 provided 10 cents per pound for most pork products stored for

the first four months and 11 cents per pound for each additional month. Table H.2 shows quantities of EC pork removed from the market through private storage aid during 1980 to 1984. The amounts going into storage are small, and represent only about 1% of total EC pork production, which averaged 21 billion pounds annually during those years.

IMPORTS

The EC pork producer is insulated from the influence of the world market through the application of sluicegate or minimum prices and variable import levies.¹ These import arrangements take into account the fact that feed costs, a major factor in pork production, are generally higher in the EC than in other countries. The sluicegate price measures a world cost for producing pork and is adjusted on a quarterly basis to reflect the most efficient world producers' costs for feed, transportation, marketing, and other overhead. Prices are first calculated on a carcass basis after which coefficients are applied to determine the appropriate sluicegate price for other pork products. Sluicegate prices in effect during the past five years are shown in Table H.3.

It is expected that pork from third countries will enter the EC at or close to the sluicegate price level. Variable levies are then applied to imports to make up the difference between world production costs and the higher EC production costs. Levies for swine carcasses are based on the difference in EC and world costs for the amount of grain required to produce one kilogram of fresh pork² and on 7% of the average of sluicegate prices in effect over the previous year. Fixed coefficients (the same used in calculating sluicegate prices) are then applied to carcass levies to determine the import levies for live swine and other pork categories. An additional protective amount is added to levies for certain processed pork, including canned ham.

As seen in Figure H.2, the sluicegate price and variable levy together create an effective minimum import that ideally is maintained at a level just above the overall average of EC production costs. This ensures a margin of preference for the Community producer and prevents imports from depressing EC market prices below the basic price. If the price of pork entering the EC would

undercut the sluicegate price, an additional or supplementary levy may also be applied to maintain the effective minimum import price. Supplementary levies designed to correspond to the average difference between import prices and the sluicegate price. Pork products supplied by countries that agree to observe the sluicegate price are exempt from any supplementary levies.

Variable levies, when in effect, apply to most pork products entering the EC. In the case of fresh pork offals, lard for industrial use, and prepared and preserved pork liver imported from GATT member countries, the only tariff applied is a fixed *ad valorem* rate. EC variable levies are imposed, however, on imports of these products when supplied by non-GATT members. Table H.4 gives variable levies in effect for various pork products during the last five years.

EXPORTS

Export refunds are paid to EC pork exporters to enable them to compete in world markets. Export refunds are payments made to offset EC swine feed costs, which are generally higher than world costs. Restitutions are usually fixed quarterly but are sometimes adjusted more frequently in light of market conditions. Refund levels by product are the same Community-wide, but may vary according to destination.

Table H.5 shows EC refund levels for certain pork products over the last five years. During 1980 and part of 1981, restitution payments for canned hams and shoulders exported to the United States were lower than for those products shipped to other markets. Export refunds for canned hams and shoulders and canned luncheon meat were then consistent for all destinations from April 1981 to March 1985, when different levels were again broken out for Canada, and also for the U.S.

Except for some fluctuation in the export refunds for boned loins, restitution payments for the products shown in Table H.5 have steadily declined since September 1980. In 1984, the EC began adjusting refund levels more frequently, and during the first five months of 1985, pork refunds were lowered four times. From March 1984 to January 1985, EC refunds for shipments to all destinations were reduced from 23 cents to 12 cents per pound for canned hams, from 19 cents to 11 cents per pound for canned shoulders, from 12 cents to 8 cents per pound for canned luncheon meat, and from 18 cents to 11 cents per pound for boned loins.

Between March and May 1985, refunds on sales of these products to Canada and the United States were cut by a further 7 to 10 cents per pound. Refunds were also reduced by this amount for exports of canned hams and shoulders and luncheon meat to Australia. The EC was able to reduce payments and still maintain a competitive position, in part because of the strengthening of the U.S. dollar during that time and the increase in North American pork prices. The reduction in refunds also appears to have been prompted by several developments that raised EC concern over possible countervailing duty actions. In April 1984 and again in May 1984, the Canadian government imposed countervailing duties on imports of certain pork products from Denmark and The Netherlands. Also at that time, the U.S. government was considering a countervailing duty petition concerning imports of pork and live swine from Canada. One European source reported that "the halving of EC refunds on exports of frozen and canned pigmeat to Canada and the U.S. by the pigmeat experts this week was an emergency decision intended to pre-empt possible U.S. retaliation."³

From May through October 1985, EC refunds for canned hams and shoulders and for boned loins exported to Canada and the U.S. remained at 2 cents per pound, and the payment on exports of canned luncheon meat was also 2 cents per pound.

EC refunds on sales of like products to other third markets, including Japan, have not been altered since January 1985 and, as of October 1985, still ranged from 8 to 12 cents per pound.

The so-called back ribs imported into the United States reportedly are not eligible for export refunds. Officials of the EC report that, inasmuch as the purpose of the export refunds is to make payments on exports of meat, and since the ribs have such a large share of bone in relation to meat, export refunds should not be made on the product.

OTHER SUPPORT MEASURES

The EC pork regulations include several other provisions to counter market fluctuations. In the event of a severe disturbance, such as a sharp and sudden increase in supply, a safeguard clause allows for the suspension of imports or the taking of any other necessary measures. While the individual member countries have in the past requested such action, the safeguard clause has

never been used. The EC may also take action if pork prices are thought to be too high. If the reference price exceeds and is likely to remain above a set level known as the penury price (see Figure H.2), steps such as the suspension of import levies may be taken. This provision has also never been implemented. A third supplementary measure is the allocation of EC and member country funds to encourage domestic pork consumption through promotion and advertising campaigns. This last occurred in 1974 when overall meat supply in the Community was high.

Though not specifically provided for under the common policy for pork, EC pork producers, along with other livestock producers, benefit from periodic programs providing for the feeding of surplus skim milk powder to animals. In 1984, the EC provided rebates for the feeding of high-priced domestic wheat to livestock.

The EC pork sector also benefits from the EC's structural policy, which provides socio-economic guidance to all agricultural producers. The structural programs, while available throughout the EC, focus on compensating poor rural areas that may receive less than a proportionate share of support through the CAP. Specific projects include improvement of infrastructure, modernization of production and processing, marketing assistance, investment aid to young farmers, and research and development. EC financial support for these programs is often matched with funds put up by farmer groups or member country governments. For example, in 1986 and 1987 the EC is scheduled to help the government of Greece to establish 16 state-owned slaughterhouses in an effort to develop the Greek pork industry.

TABLE H.1 EC BASIC PRICE LEVEL, 1980-86

	U.S. \$/pound	ECU/tonne
1980-81	0.80	1 587.21
1981-82	0.78	1 761.80
1982-83	0.79	1 946.80
1983-84	0.89	2 503.87
1984-85	0.64	2 033.30
1985-86	0.64	2 033.30

TABLE H.2 PRIVATE STORAGE OF PORK IN THE EC, 1980-83

	1980	1981	1982	1983
Italy	37.4	30.0	50.6	46.1
Germany	30.7	19.9	23.6	85.3
Belgium/Luxembourg	33.7	15.8	20.1	34.7
The Netherlands	41.3	10.0	25.8	27.7
Denmark	24.1	10.2	17.9	37.0
France	19.2	7.6	17.3	25.2
United Kingdom	35.0	1.7	2.1	7.3
Ireland	0.4	-	0.2	1.5
Greece	-	-	0.1	0.2
TOTAL	190.4	95.2	157.7	265.0

Source: *The Danish Pigmeat Sector Statistics, 1980-83*, Danish Bacon and Meat Council.

TABLE H.3 EC SLUICEGATE PRICE, 1980-85

	U.S. \$/pound	ECU/tonne
1980-81	0.58	1 143.70
1981-82	0.61	1 364.40
1982-83	0.51	1 271.90
1983-84	0.46	1 284.30
1984-85	0.49	1 568.70

TABLE H.4 EC VARIABLE LEVIES APPLIED TO VARIOUS PRODUCTS, 1981-85

Product	1981 (July)	1982 (July)	1983 (Oct)	1984 (July)	1985 (July)
(U.S. cents per pound)					
Carcasses	16	21	19	14	13
Legs	23	30	28	20	19
Forends or shoulders	18	23	22	16	14
Loins	26	33	31	23	21
Bellies	14	18	17	12	11
Canned hams	55	67	63	49	45
Canned shoulders	45	55	51	41	38
Sausages (uncooked)	52	62	58	45	41

Source: Official Journal of the European Communities.

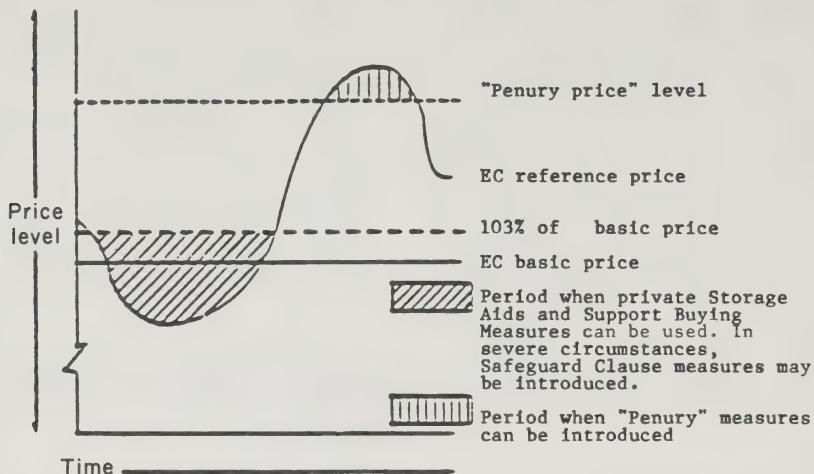
TABLE H.5 EC EXPORT REFUNDS FOR CERTAIN PORK PRODUCTS, TO CANADA, UNITED STATES AND ALL OTHER MARKETS, 1980 TO MAY 1985

Effective date		Hams	Shoulders	Luncheon meat	Boned loins
(U.S. cents per pound)					
February 1, 1980:	To U.S.	32	27	25	32
	Other	50	40	25	32
September 8, 1980:	To U.S.	37	30	25	32
	Other	50	40	25	32
January 26, 1981:	To U.S.	29	24	18	20
	Other	34	28	18	20
April 2, 1981	33	27	18	19	
April 15, 1981	33	27	17	19	
October 15, 1981	33	27	17	15	
January 19, 1982	29	24	15	13	
April 6, 1982	29	24	15	20	
October 12, 1982	29	24	15	20	
January 28, 1983	26	21	13	20	
April 13, 1983	26	21	13	24	
October 5, 1983	26	21	13	21	
March 23, 1984	23	19	12	18	
April 11, 1984	21	18	11	18	
May 21, 1984	20	16	10	17	
July 13, 1984	18	15	09	15	
October 8, 1984	15	13	09	12	
January 8, 1985	12	11	08	11	
March 20, 1985:	To U.S. and Canada	05 ^a	05 ^a	03 ^a	11
	Other	12	11	08	11
April 23, 1985:	To U.S. and Canada	04 ^a	04 ^a	05 ^a	05
	Other	12	11	11	11
May 13, 1985: ^a	To U.S. and Canada	02 ^a	02 ^a	02 ^a	02
	Other	12	11	11	11

^a this refund rate also effective for Australia

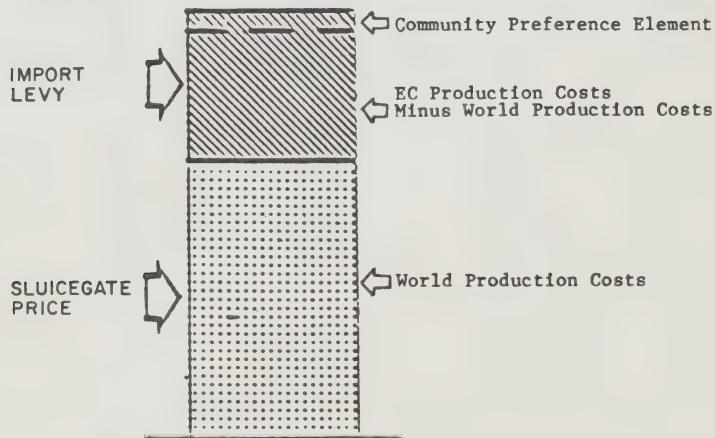
Source: Official Journal of the European Communities.

FIGURE H.1 TRIGGERING MECHANISM OF THE REFERENCE WITH THE BASIC PRICE



Source: Agra Europe (London), Ltd. CAP Monitor.

FIGURE H.2 IMPORT LEVY AND SLUICEGATE PRICE SYSTEM FOR SWINE CARCASS



Source: Meat and Livestock Commission, Economic Information Service, London, England, CAP-Pigmeat. An explanation of the CAP Pigmeat Regime (3rd revision), July 1982.

APPENDIX I: PRICE SPREADS BETWEEN TORONTO AND MAJOR CANADIAN AND U.S. MARKETS, AND U.S. PRICES, EXCHANGE RATES AND CONVERSION TO CANADIAN EQUIVALENT

TABLE I.1 PRICE SPREADS BETWEEN TORONTO AND MAJOR CANADIAN AND U.S. MARKETS, 1970-86

	Edmonton	Saskatoon	Winnipeg	New Brunswick	Quebec	Omaha	7 Markets
(Can \$/cwt, warm dressed weight)							
1970							
Q1	3.60	2.20	3.30	1.14		0.44	0.40
Q2	3.70	2.90	4.00	0.97		0.71	0.40
Q3	3.20	2.90	3.70	1.04		0.86	0.79
Q4	3.60	3.20	4.50	0.75		5.53	5.28
1971							
Q1	3.80	3.20	4.40	0.46		2.72	2.41
Q2	3.90	3.00	4.10	0.50		1.22	1.01
Q3	3.40	1.70	2.90	0.65		0.79	0.43
Q4	2.80	2.40	3.60	-0.37		1.74	1.30
1972							
Q1	5.20	3.60	4.70	1.76		1.44	1.12
Q2	5.10	3.20	4.50	0.79		3.04	2.66
Q3	4.70	3.40	4.80	0.91		3.58	3.25
Q4	3.80	2.90	3.90	0.73		4.85	4.54
1973							
Q1	5.70	3.40	4.80	1.35		3.59	3.37
Q2	5.20	3.90	5.60	1.18		1.79	1.31
Q3	4.40	3.80	4.70	2.22		0.33	-0.14
Q4	3.70	2.10	2.70	-1.18		5.19	4.45
1974							
Q1	4.10	3.90	4.40	7.80		1.90	1.43
Q2	5.40	3.30	4.20	-0.50		7.67	7.03
Q3	4.70	4.50	6.90	0.70		7.22	6.72
Q4	4.30	4.60	4.80	0.89		6.25	5.83
1975							
Q1	3.90	4.40	4.70	2.08		4.92	4.43
Q2	4.40	4.30	5.10	2.12		1.04	0.53
Q3	3.10	3.80	4.00	3.04		1.98	1.65
Q4	3.60	4.80	3.60	0.79		6.99	6.35
1976							
Q1	0.20	3.10	2.50	0.25		7.25	6.66
Q2	3.40	4.40	4.30	-0.30		5.33	4.78
Q3	5.00	5.00	5.10	-0.68		10.40	9.83
Q4	5.50	6.10	5.30	0.90		11.01	10.33

(Continued)

TABLE I.1 PRICE SPREADS BETWEEN TORONTO AND MAJOR CANADIAN AND U.S. MARKETS, 1970-86 (Concluded)

	Edmonton	Saskatoon	Winnipeg	New Brunswick	Quebec	Omaha	7 Markets
(Can \$/cwt, warm dressed weight)							
1977							
Q1	1.80	4.80	3.50	0.88		3.34	3.00
Q2	4.50	4.30	4.30	2.17		5.13	4.63
Q3	4.80	4.20	4.30	0.72		5.10	4.54
Q4	3.90	4.00	4.00	1.08		4.86	4.26
1978							
Q1	3.80	5.20	4.90	-0.29		0.91	0.67
Q2	-0.40	2.40	1.80	0.92		-2.56	-2.85
Q3	-1.40	2.20	1.40	2.53		-3.33	-3.51
Q4	-2.40	-1.60	-1.90	-0.06		-1.74	-2.18
1979							
Q1	-1.80	-0.80	-1.10	0.52	3.15	-6.87	-7.26
Q2	-0.20	0.40	0.50	1.00	2.52	0.82	0.22
Q3	-1.00	-0.20	-0.20	0.89	2.62	3.21	2.60
Q4	-0.40	-0.20	0.00	1.32	2.00	2.38	1.69
1980							
Q1	-0.20	1.50	1.00	0.62	1.05	-1.76	-1.89
Q2	4.50	4.30	5.00	1.66	1.96	3.13	2.39
Q3	3.90	4.10	4.10	1.85	2.85	-2.53	-2.80
Q4	2.60	3.60	3.30	-1.13	1.92	1.19	0.89
1981							
Q1	3.60	3.20	3.80	0.88	1.01	1.96	1.88
Q2	2.60	2.80	3.40	0.59	1.50	-0.95	-1.45
Q3	2.20	2.70	2.70	0.83	2.68	0.88	0.30
Q4	0.20	2.20	1.80	1.24	2.57	4.62	4.26
1982							
Q1	1.90	2.50	2.50	-0.41	2.15	-5.36	-5.84
Q2	2.20	3.20	2.40	0.68	1.22	-2.93	-3.79
Q3	1.40	2.90	2.90	1.01	2.22	-4.33	-5.35
Q4	1.20	3.60	2.90	0.67	2.95	-4.38	-4.22
1983							
Q1	1.90	4.10	3.60	1.06	2.27	-4.41	-4.76
Q2	2.90	3.90	3.90	0.70	2.34	-3.05	-2.80
Q3	0.70	2.20	1.80	1.09	2.40	-6.01	-5.72
Q4	1.20	2.30	2.50	-1.80	1.93	-5.11	-5.26
1984							
Q1	2.20	1.70	2.40	0.26	1.48	-11.07	-11.05
Q2	4.60	3.60	4.40	1.70	2.52	-7.54	-8.02
Q3	6.10	4.40	5.20	0.55	1.32	-6.65	-7.11
Q4	4.90	2.50	3.70	0.78	1.84	-9.30	-9.57
1985							
Q1	4.50	2.50	2.80	-0.16	1.83	-10.67	-10.83
Q2	3.60	2.10	3.50	1.13	2.18	-12.53	-12.58
Q3	3.80	3.30	3.80	0.45	2.52	-8.23	-8.51
Q4	2.80	3.20	3.40	0.70	2.64	-8.82	-9.05
1986							
Q1	2.20	2.60	2.90		2.07		

TABLE I.2 U.S. PRICES, EXCHANGE RATES AND CONVERSION TO CANADIAN EQUIVALENT, 1970-86

	Omaha	7 Markets	Exchange rate	Omaha	7 Markets
	(U.S. \$/cwt, live)			(Can \$/cwt, dressed) ⁿ	
1970					
Q1	27.17	27.20	1.070	37.76	37.80
Q2	23.67	23.90	1.060	32.59	32.90
Q3	22.45	22.50	1.020	29.74	29.81
Q4	16.21	16.40	1.020	21.47	21.72
1971					
Q1	17.37	17.60	1.010	22.78	23.09
Q2	17.14	17.30	1.010	22.48	22.69
Q3	19.03	19.30	1.020	25.21	25.57
Q4	19.76	20.10	1.000	25.66	26.10
1972					
Q1	24.45	24.70	1.000	31.76	32.08
Q2	24.70	25.00	0.9900	31.76	32.14
Q3	28.54	28.80	0.9800	36.32	36.65
Q4	28.66	28.90	0.9900	36.85	37.16
1973					
Q1	35.43	35.60	1.000	46.01	46.23
Q2	36.43	36.80	1.000	47.31	47.79
Q3	48.64	49.00	1.000	63.17	63.64
Q4	40.43	41.00	1.000	52.51	53.25
1974					
Q1	38.03	38.40	0.9800	48.40	48.87
Q2	27.49	28.00	0.9700	34.63	35.27
Q3	36.21	36.60	0.9800	46.08	46.58
Q4	38.77	39.10	0.9900	49.85	50.27
1975					
Q1	39.03	39.40	1.000	50.68	51.17
Q2	45.72	46.10	1.020	60.56	61.07
Q3	58.55	58.80	1.030	78.32	78.65
Q4	51.72	52.20	1.020	68.51	69.15
1976					
Q1	47.55	48.00	1.000	61.75	62.34
Q2	48.77	49.20	0.9800	62.07	62.62
Q3	43.45	43.90	0.9800	55.30	55.87
Q4	33.67	34.20	0.9900	43.29	43.97
1977					
Q1	38.85	39.10	1.030	51.96	52.30
Q2	40.53	40.90	1.050	55.27	55.77
Q3	43.39	43.80	1.070	60.30	60.86
Q4	40.98	41.40	1.100	58.54	59.14
1978					
Q1	47.23	47.40	1.110	68.09	68.33
Q2	47.61	47.80	1.130	69.86	70.15
Q3	48.38	48.50	1.140	71.63	71.81
Q4	49.82	50.10	1.180	76.34	76.78

(continued)

TABLE I.2 U.S. PRICES, EXCHANGE RATES AND CONVERSION TO CANADIAN EQUIVALENT, 1970-86 (Concluded)

	Omaha	7 Markets	Exchange rate	Omaha	7 Markets
	(U.S. \$/cwt, live)			(Can \$/cwt, dressed) ^a	
1979					
Q1	51.74	52.00	1.190	79.97	80.36
Q2	42.60	43.00	1.160	64.18	64.78
Q3	38.10	38.50	1.170	57.89	58.50
Q4	35.95	36.40	1.170	54.62	55.31
1980					
Q1	36.22	36.30	1.160	54.56	54.69
Q2	30.72	31.20	1.170	46.67	47.41
Q3	46.02	46.20	1.160	69.33	69.60
Q4	46.21	46.40	1.180	70.81	71.11
1981					
Q1	41.05	41.10	1.190	63.44	63.52
Q2	43.28	43.60	1.200	67.45	67.95
Q3	50.03	50.40	1.210	78.62	79.20
Q4	42.37	42.60	1.190	65.48	65.84
1982					
Q1	47.89	48.20	1.210	75.26	75.74
Q2	55.97	56.50	1.240	90.13	90.99
Q3	61.37	62.00	1.250	99.63	100.65
Q4	55.20	55.10	1.230	88.18	88.02
1983					
Q1	54.78	55.00	1.230	87.51	87.86
Q2	46.86	46.70	1.230	74.85	74.60
Q3	47.08	46.90	1.230	75.21	74.92
Q4	42.11	42.20	1.240	67.81	67.96
1984					
Q1	47.71	47.70	1.260	78.07	78.05
Q2	48.61	48.90	1.290	81.44	81.92
Q3	50.93	51.20	1.310	86.65	87.11
Q4	47.54	47.70	1.320	81.50	81.77
1985					
Q1	47.21	47.30	1.350	82.77	82.93
Q2	43.07	43.10	1.370	76.63	76.68
Q3	43.44	43.60	1.360	76.73	77.01
Q4	44.87	45.00	1.380	80.42	80.65
1986					
Q1	43.27	43.30			

^a to convert from live to warm dressed a factor of .77 was used

Source: USDA, ERS, Livestock and Meat Statistics.

APPENDIX J: LIST OF TRADE PROMOTION ACTIVITIES SURVEYED BY DEPARTMENT OF EXTERNAL AFFAIRS FROM OCTOBER 1985 TO OCTOBER 1986

TRADE PROMOTION ACTIVITIES

Nichiryu buying mission	October 1985
Nichiryu buying mission	October 1985
Seiyu buying mission	July 1985
Seiyu buying mission	July 1986
York Benimaru mission	September 1986
Ontario sponsored mission of Japanese pork buyers	1985
Buying missions to Food Pacific 86	JETRO
Foodex 85	Japan Management Association
Foodex 86	Mitsubishi
	Shokuhin Sangyo Shimbun
	Ontario Government mission
Foodex 85	March 1985
Foodex 86	March 1986

1986

Sogo department stores - 16 stores	February-June 1986
Tokyo department stores - 6 stores	June 1986
Odakyu department store - 1 store	May 1986
Hankyu department stores - 5 stores	October 1986
Isetan department stores - 5 stores	October 1986
Mediya stores - 20 stores	March 1986
Tokyu superstores - 81 stores	March 1986
Chujitsuya Co. - 120 stores	April 1986
AIC Food Fair - 400 stores	October 1986
Santoku stores - 25 stores	November 1986
CGC Japan - 26 stores	November 1986
Seiyu stores - 250 stores	November 1986
Akasaka Prince Hotel	March 1986
Satelite Hotel	April 1986
Imperial Hotel	May 1986
Chiba Grand Hotel	June 1986
Keio Plaza Hotel	October 1986
Century Hyatt Hotel	June 1986
Palace Hotel	August 1986
Okura Hotel	September 1986
John Bull Restaurant	October 1986

1985

Hankyu department stores
Isetan department stores
Meidiya stores
AIC Food Fair
Seiyu stores
Palace Hotel
John Bull Restaurant

APPENDIX K: ANIMAL RESEARCH EXPENDITURES

TABLE K.1 AGRICULTURE CANADA - ANIMAL RESEARCH EXPENDITURES: 1968-69 TO 1985-86

	1968-69	1984-85	1983-84	1982-83	1981-82	1980-81	1979-80	1978-79	1977-78	1976-77	1975-76	1974-75	1973-74	1972-73	1971-72	1970-71	1969-70	1985-86 (forecast)	
	(\$ thousand)																		
Beef cattle	11 219	9 375	8 917	7 115	7 191	6 197	6 020	5 606	2 745	2 420	2 120	1 710	1 494	1 510	1 338	871	731	776	
Dairy cattle	8 095	8 429	8 036	7 286	7 015	4 615	4 596	4 338	2 501	2 330	2 172	1 858	1 630	1 390	1 326	1 223	1 178	1 137	
Swine	2 919	3 085	3 501	3 669	2 860	2 134	1 536	1 300	1 255	1 013	936	808	811	592	530	484	513	531	
Poultry	7 027	3 809	3 785	3 677	3 270	2 688	2 349	2 395	2 042	1 947	2 023	1 732	1 649	1 474	1 337	1 151	1 166	1 328	
Sheep	2 205	2 053	2 074	1 863	1 904	1 515	1 077	1 260	707	794	824	679	562	495	462	337	232	222	
Other	513	350	456	472	417	363	460	413	1 097	935	900	771	679	661	660	554	835	816	
Animal research (general)										2 453	1 894	1 559	1 384	1 224	1 020	913	570	707	653
Total	31 978	27 301	26 767	24 032	22 657	17 512	16 037	15 332	12 600	11 423	10 564	8 941	8 049	7 142	6 506	5 590	5 432	5 403	

Notes:

1. All figures are actual costs figures, with the exception of 1985-86, which is an expenditure forecast.

2. The 1976-77 date does not match that reported in the Public Accounts (total - \$11 106 000). Research Branch are aware of this \$317 000 discrepancy but have no ready explanation for it.

Sources:

1. 1968-69, 1969-70, 1970-71, 1971-72, 1972-73, 1973-74, 1974-75, 1975-76 (forecast), and breakdowns for 1970-71 to 1975-76 and 1977-78 to 1980-81. Research Branch
2. Totals for 1970-71 to 1980-81 (except 1976-77). Public Accounts, Volume II, various years.
3. 1981-82 to 1983-84. Estimates, Part III, various years.

Compiled by: P. Culliford (PED)

APPENDIX L: PRODUCTION, EXPORT, NET INTERPROVINCIAL SHIPMENTS, SLAUGHTER, TRANSFER IN VALUE-ADDED AND SELF-SUFFICIENCY RATIOS

TABLE L.1 ATLANTIC PROVINCES

	Hogs						Self-sufficiency ratios ^b		
	Production	Export	Net interprovincial shipments			Transfer in value added ^b	Farm/ slaughter	Slaughter/ consumption	Farm/ consumption
			Total ^a	Quebec	Slaughter				
	(thousand head)						(\$ million)		
1970	364.6	10.0	-10.5	-10.5	365.1	n.a.	1.00	0.44	0.44
1971	367.2	1.0	-13.6	-13.6	379.8	0.11	0.97	0.39	0.37
1972	322.2	0.8	-7.4	-7.4	328.8	0.09	0.98	0.36	0.35
1973	321.9	1.9	-3.9	-3.9	323.8	0.05	0.99	0.37	0.36
1974	311.2	1.7	-6.3	-6.3	315.8	0.11	0.99	0.32	0.32
1975	290.6	0.0	-5.5	-5.5	295.3	0.14	0.98	0.35	0.35
1976	289.2	0.7	-3.6	-3.6	292.0	0.09	0.98	0.32	0.32
1977	305.7	0.7	-4.6	-4.6	309.6	0.11	0.99	0.32	0.32
1978	339.9	1.5	-1.3	-1.3	339.7	-0.00	1.00	0.35	0.35
1979	401.9	2.9	0.4	0.3	398.7	-0.08	1.01	0.37	0.37
1980	474.0	2.0	9.7	9.7	462.3	-0.23	1.05	0.41	0.42
1981	511.7	1.8	11.6	11.6	498.3	-0.31	1.05	0.46	0.48
1982	541.6	1.1	14.4	14.4	526.1	-0.54	1.03	0.54	0.56
1983	562.4	1.1	61.5	61.5	499.8	-2.37	1.13	0.50	0.55
1984	618.6	4.6	86.0	86.0	549.0	-2.66	1.13	0.56	0.63
1985	603.4	5.1	60.3	60.3	540.1	-2.60	1.12	0.56	0.62

^a the total is not necessarily equal to the sum of the neighboring provinces

^b estimates

TABLE L.2 QUEBEC

	Hogs						Self-sufficiency ratios ^b			
	Production	Export	Net interprovincial shipments			Transfer in value added ^b	Farm/ slaughter	Slaughter/ consumption	Farm/ consumption	
			Total ^a	Atlantic provinces	Ontario	Slaughter				
	(thousand head)						(\$ million)			
1970	1749.5	3.0	-152.8	10.5	-163.3	1899.2	n.a.	0.92	0.71	0.65
1971	1930.1	2.4	-127.0	13.6	-140.6	2054.8	1.06	0.94	0.70	0.66
1972	1881.6	0.3	-147.9	7.4	-150.6	2029.1	1.96	0.94	0.77	0.71
1973	1912.0	1.0	-129.4	3.9	-131.5	2040.3	3.09	0.94	0.86	0.81
1974	2290.5	11.9	-53.2	6.3	-54.6	2331.8	0.97	0.98	0.95	0.93
1975	2306.5	2.0	-37.7	5.5	-42.5	2342.2	1.07	0.99	1.15	1.11
1976	2341.0	5.7	-74.5	3.6	-76.5	2409.8	2.23	0.97	1.09	1.05
1977	2609.1	4.5	-81.3	4.6	-85.5	2686.0	2.11	0.97	1.16	1.12
1978	3069.5	24.9	-159.4	1.3	-160.6	3204.0	3.98	0.96	1.41	1.35
1979	3849.9	32.8	-231.7	-0.3	-231.1	4048.8	4.65	0.95	1.53	1.46
1980	4700.9	15.6	-133.9	-9.7	122.6	4819.2	2.31	0.98	1.67	1.63
1981	4741.0	5.5	-199.9	-11.6	-187.5	4935.4	4.50	0.96	1.73	1.65
1982	4623.3	21.5	-146.8	-14.4	-132.4	4689.4	6.40	0.96	1.72	1.66
1983	4520.6	16.3	-185.1	-61.5	-123.4	4689.4	6.40	0.96	1.72	1.66
1984	4682.2	43.2	-338.5	-66.0	-272.5	4977.5	11.28	0.94	1.86	1.75
1985	4694.4	21.9	-400.2	-60.3	-339.9	5072.7	15.50	0.93	1.86	1.72

^a the total is not necessarily equal to the sum of the neighboring provinces

^b estimates

TABLE L.3 ONTARIO

	Hogs						Self-sufficiency ratios ^b			
	Production	Export	Total ^a	Quebec	Manitoba	Slaughter	Transfer in value added ^b	Farm/ slaughter	Slaughter/ consumption	Farm/ consumption
	(thousand head)						(\$ million)			
1970	2958.7	12.9	158.6	163.3	-2.0	2787.3	n.a.	1.06	1.00	1.07
1971	3172.9	18.3	136.6	140.6	-1.3	3018.0	-1.31	1.05	0.93	0.98
1972	2950.3	12.7	142.9	150.6	-2.5	2794.7	-2.06	1.06	0.91	0.96
1973	2764.2	15.9	118.6	131.5	-12.0	2629.7	-3.24	1.05	0.91	0.96
1974	2786.2	18.2	28.9	54.6	-7.5	2739.1	-1.10	1.02	0.86	0.87
1975	2464.1	10.8	36.6	42.5	-5.9	2416.7	-1.42	1.02	0.88	0.90
1976	2568.4	13.9	75.8	76.5	-0.6	2478.6	-2.91	1.04	0.81	0.84
1977	2642.0	11.7	84.3	85.5	-0.2	2546.0	-2.63	1.04	0.77	0.80
1978	3063.1	37.5	160.3	160.6	0.2	2865.3	-5.85	1.07	0.84	0.90
1979	3809.2	33.3	230.6	231.1	-0.4	3545.3	-6.18	1.07	0.89	0.95
1980	4222.3	30.6	101.6	122.6	-19.4	4090.1	-2.58	1.03	0.94	0.97
1981	4085.0	25.0	168.2	187.5	-18.1	3890.8	-4.49	1.05	0.91	0.95
1982	4272.9	78.1	114.6	132.3	-17.7	4080.2	-6.66	1.05	1.02	1.07
1983	4485.3	137.8	114.0	123.4	-9.5	4233.5	-9.54	1.06	1.03	1.09
1984	4624.1	587.5	271.8	272.5	-0.6	3764.8	-32.81	1.23	0.92	1.13
1985	4635.3	576.5	331.6	339.9	-8.3	3727.1	-37.21	1.25	0.88	1.10

^a the total is not necessarily equal to the sum of the neighboring provinces^b estimates

TABLE L.4 MANITOBA

	Hogs						Self-sufficiency ratios ^b			
	Production	Export	Total ^a	Ontario	Saskatchewan	Slaughter	Transfer in value added ^b	Farm/ slaughter	Slaughter/ consumption	Farm/ consumption
	(thousand head)						(\$ million)			
1970	1125.6	32.4	-146.0	2.0	-147.3	1239.1	n.a.	0.91	3.29	2.99
1971	1395.9	43.5	-224.0	1.3	-219.3	1576.3	1.53	0.89	3.56	3.16
1972	1296.0	58.5	-41.7	2.5	-47.8	1279.2	-0.22	1.01	3.06	3.10
1973	1277.7	56.5	-6.1	12.0	-19.8	1227.2	-1.21	1.04	3.12	3.25
1974	1297.6	109.3	-8.0	7.5	-0.7	1196.3	-2.37	1.08	2.24	2.97
1975	847.0	16.1	11.3	5.9	5.3	819.6	-0.82	1.03	2.28	2.36
1976	842.7	23.3	23.8	0.6	18.6	795.6	-1.53	1.06	2.07	2.20
1977	858.7	18.8	12.8	0.2	5.0	827.0	-0.87	1.04	2.06	2.14
1978	918.5	75.0	51.0	-0.2	34.6	791.6	-3.75	1.16	2.01	2.33
1979	1100.6	46.5	2.9	0.4	1.0	1051.2	-1.16	1.05	2.28	2.39
1980	1279.2	107.5	19.4	19.4	0.8	1152.4	-2.47	1.11	2.28	2.53
1981	1238.7	71.9	20.8	18.1	1.8	1146.0	-2.15	1.08	2.30	2.49
1982	1269.4	138.7	36.2	17.7	0.7	1094.5	-6.04	1.16	2.33	2.71
1983	1383.4	160.5	31.2	9.5	-0.7	1191.7	-7.26	1.16	2.44	2.83
1984	1583.3	344.3	-29.8	0.6	-29.9	1268.8	-12.01	1.25	2.68	3.35
1985	1776.6	283.6	-40.8	8.3	-49.8	1533.8	-9.95	1.16	3.12	3.62

^a the total is not necessarily equal to the sum of the neighboring provinces^b estimates

TABLE L.5 SASKATCHEWAN

	Hogs							Self-sufficiency ratios ^b		
			Net interprovincial shipments			Transfer in value added ^b	Farm/ slaughter	Slaughter/ consumption	Farm/ consumption	
Production	Export	Total ^a	Manitoba	Alberta	Slaughter					
		(thousand head)							(\$ million)	
1970	872.4	0.6	156.5	147.3	9.0	715.3	n.a.	1.22	1.99	2.43
1971	1255.2	0.1	292.1	219.3	72.6	963.1	-2.48	1.30	2.32	3.02
1972	1103.9	0.5	114.4	47.8	65.3	989.0	-1.52	1.12	2.57	2.87
1973	1073.5	0.6	121.4	19.8	101.6	951.4	-2.94	1.13	2.66	3.00
1974	1028.9	0.3	61.7	0.7	60.6	967.0	-1.45	1.06	2.46	2.62
1975	568.5	0.2	15.8	-5.3	20.8	552.5	0.48	1.03	1.75	1.80
1976	534.9	0.1	-5.4	-18.6	13.2	540.2	0.17	0.99	1.61	1.60
1977	534.4	0.0	-13.5	-5.0	-8.5	547.8	0.37	0.98	1.57	1.53
1978	558.4	1.0	-49.0	-34.6	-14.4	606.3	1.42	0.92	1.76	1.62
1979	647.0	2.8	33.3	-1.0	34.3	610.9	-0.84	1.06	1.59	1.68
1980	774.0	33.9	134.4	-0.8	133.7	605.6	-3.28	1.28	1.44	1.84
1981	671.5	17.4	119.7	-1.8	121.4	534.3	-3.17	1.26	1.33	1.67
1982	611.5	44.5	18.0	-0.7	18.7	548.9	-2.16	1.11	1.53	1.71
1983	630.9	53.8	28.3	0.7	11.2	548.8	-3.11	1.15	1.45	1.67
1984	774.8	85.0	26.4	29.9	-8.3	663.4	-4.25	1.17	1.82	2.12
1985	703.9	68.4	16.8	49.8	-33.0	698.7	-3.49	1.12	1.86	2.08

^a the total is not necessarily equal to the sum of the neighboring provinces^b estimates

TABLE L.6 ALBERTA

	Hogs							Self-sufficiency ratios ^b		
			Net interprovincial shipments			Transfer in value added ^b	Farm/ slaughter	Slaughter/ consumption	Farm/ consumption	
Production	Export	Total ^a	Sask.	B.C.	Slaughter					
		(thousand head)							(\$ million)	
1970	1676.5	28.6	95.7	-9.0	101.5	1552.3	n.a.	1.08	2.36	2.55
1971	2060.2	22.9	32.4	-72.6	96.5	2004.9	-0.47	1.03	2.58	2.65
1972	1912.9	15.2	6.3	-65.3	66.6	1891.4	-0.29	1.01	2.55	2.58
1973	1731.2	13.6	-49.8	-101.6	51.0	1767.4	0.87	0.98	2.51	2.46
1974	1679.3	52.5	19.8	-60.6	42.8	1607.0	-1.70	1.05	2.06	2.16
1975	1158.9	0.4	5.7	-20.8	26.0	1152.9	-0.18	1.01	1.79	1.80
1976	1086.6	0.6	-10.7	-13.2	5.5	1096.7	0.33	0.99	1.63	1.61
1977	1176.6	3.1	5.7	8.5	3.5	1167.8	-0.24	1.01	1.66	1.67
1978	1225.0	45.7	4.2	14.4	5.9	1175.0	-1.48	1.04	1.69	1.76
1979	1418.4	12.3	-25.7	-34.3	9.8	1431.8	0.31	0.99	1.71	1.69
1980	1674.7	45.4	-129.4	-133.7	1.9	1758.6	1.64	0.95	1.84	1.75
1981	1605.9	25.1	-127.0	-121.4	-5.6	1707.7	2.36	0.94	1.73	1.63
1982	1531.4	3.8	-62.1	-18.7	-25.7	1589.6	2.01	0.96	1.66	1.60
1983	1642.9	47.7	-31.4	-11.2	2.0	1626.6	-0.62	1.01	1.63	1.64
1984	1968.2	277.0	165.3	8.3	156.4	1526.0	-16.89	1.29	1.59	2.06
1985	2121.0	189.0	231.2	33.0	199.0	1700.8	-17.22	1.25	1.74	2.17

^a the total is not necessarily equal to the sum of the neighboring provinces^b estimates

TABLE L.7 BRITISH COLUMBIA

Hogs									
Production	Export	Net interprovincial shipments			Transfer in value added ^b	Self-sufficiency ratios ^b			
		Total ^a	Alberta	Slaughter		Farm/ slaughter	Slaughter/ consumption	Farm/ consumption	
(thousand head)						(\$ million)			
1970	66.0	0.7	-101.5	-101.5	166.8	n.a.	0.40	0.23	0.09
1971	83.5	0.5	-96.5	-96.5	179.5	0.82	0.47	0.21	0.10
1972	58.2	0.7	-66.6	-66.6	124.1	0.87	0.47	0.15	0.07
1973	51.1	0.7	-51.0	-51.0	101.3	1.21	0.50	0.12	0.08
1974	73.5	3.2	-42.8	-42.8	113.1	0.93	0.65	0.12	0.08
1975	66.7	0.4	-26.2	-26.0	92.4	0.77	0.72	0.11	0.08
1976	66.5	0.8	-5.5	-5.5	71.1	0.15	0.93	0.08	0.08
1977	83.4	4.6	-3.5	-3.5	82.3	-0.03	1.01	0.09	0.09
1978	98.7	1.6	-5.9	-5.9	103.0	0.13	0.96	0.11	0.10
1979	140.4	0.7	-9.8	-9.8	149.5	0.21	0.94	0.13	0.13
1980	263.5	2.5	-1.9	-1.9	262.8	-0.01	1.00	0.21	0.21
1981	339.3	0.7	5.6	5.6	333.0	-0.15	1.02	0.26	0.27
1982	341.5	17.1	25.7	25.7	298.1	-1.50	1.15	0.25	0.29
1983	350.5	42.1	-18.4	-2.0	326.7	-0.90	1.07	0.27	0.29
1984	349.3	5.9	-161.2	-156.4	504.6	5.93	0.69	0.42	0.29
1985	359.7	9.9	-199.0	-199.0	548.7	7.74	0.66	0.45	0.29

^a the total is not necessarily equal to the sum of the neighboring provinces^b estimates

APPENDIX M: ARTICLES VI AND XVI OF THE GENERAL AGREEMENT ON TARIFFS AND TRADE

ARTICLE VI

1. The contracting parties recognize that dumping, by which products of one country are introduced into the commerce of another country at less than the normal value of the products, is to be condemned if it causes or threatens material injury to an established industry in the territory of a contracting party or materially retards the establishment of a domestic industry. For the purposes of this Article, a product is to be considered as being introduced into the commerce of an importing country at less than its normal value, if the price of the product exported from one country to another:

- (a) is less than the comparable price, in the ordinary course of trade, for the like product when destined for consumption in the exporting country; or
- (b) in the absence of such domestic price, is less than either:
 - (i) the highest comparable price for the like product for export to any third country in the ordinary course of trade; or
 - (ii) the cost of production of the product in the country of origin plus a reasonable addition for selling cost and profit.

Due allowance shall be made in each case for differences in conditions and terms of sale, for differences in taxation, and for other differences affecting price comparability.

- 2. In order to offset or prevent dumping, a contracting party may levy on any dumped product an anti-dumping duty not greater in amount than the margin of dumping in respect of such product. For the purposes of this Article, the margin of dumping is the price difference determined in accordance with the provisions of paragraph 1.
- 3. No countervailing duty shall be levied on any product of the territory of any contracting party imported into the territory of another contracting party in excess of an

amount equal to the estimated bounty or subsidy determined to have been granted, directly or indirectly, for the manufacture, production or export of such product in the country of origin or exportation, including any special subsidy to the transportation of a particular product. The term "countervailing duty" shall be understood to mean a special duty levied for the purpose of offsetting any bounty or subsidy bestowed, directly or indirectly, upon the manufacture, production or export of any merchandise.

- 4. No product of the territory of any contracting party imported into the territory of any other contracting party shall be subject to anti-dumping or countervailing duty by reason of the exemption of such product from duties or taxes borne by the like product when destined for consumption in the country of origin or exportation, or by reason of the refund of such duties or taxes.
- 5. No product of the territory of any contracting party imported into the territory of any other contracting party shall be subject to both anti-dumping and countervailing duties to compensate for the same situation of dumping or report subsidization.
- 6.
 - (a) No contracting party shall levy any anti-dumping or countervailing duty on the importation of any product of the territory of another contracting party, unless it determines that the effect of the dumping or subsidization, as the case may be, is such as to cause or threaten material injury to an established domestic industry, or is such as to retard materially the establishment of a domestic industry.
 - (b) The contracting parties may waive the requirement of subparagraph (a) of this paragraph so as to permit a contracting party to levy an anti-dumping or countervailing duty on the importation of any product for the purpose of offsetting dumping or subsidization which causes or threatens material injury to an industry in the territory of

the importing contracting party. The contracting parties shall waive the requirements of subparagraph (a) of this paragraph so as to permit the levying of a countervailing duty, in cases in which they find that a subsidy is causing or threatening material injury to an industry in the territory of another contracting party exporting the product concerned to the territory of the importing contracting party.

- (c) In exceptional circumstances, however, where delay might cause damage which would be difficult to repair, a contracting party may levy a countervailing duty for the purpose referred to in subparagraph (b) of this paragraph without the prior approval of the contracting parties, provided that such action shall be withdrawn promptly if the contracting parties disapprove.
7. A system for the stabilization of the domestic price or of the return to domestic producers of a primary commodity, independently of the movements of export prices, which results at times in the sale of the commodity for export at a price lower than the comparable price charged for the like commodity to buyers in the domestic market, shall be presumed not to result in material injury within the meaning of paragraph 6 if it is determined by consultation among the contracting parties substantially interested in the commodity concerned that:
 - (a) the system has also resulted in the sale of the commodity for export at a price higher than the comparable price charged for the like commodity to buyers in the domestic market; and
 - (b) the system is so operated, either because of the effective regulation of production, or otherwise, as not to stimulate exports unduly or otherwise seriously prejudice the interests of other contracting parties.

ARTICLE XVI

1. If any contracting party grants or maintains any subsidy, including any form of income or price support, which operates directly or indirectly to increase exports of any product from, or to reduce imports of any product into, its territory, it shall notify the contracting parties in writing of the extent and nature of the subsidization, of the estimated effect of the subsidization on the quantity of the affected product or products imported into or exported from its territory and of the circumstances making the subsidization necessary. In any case in which it is determined that serious prejudice to the interests of any other contracting party is caused or threatened by any such subsidization, the contracting party granting the subsidy shall, upon request, discuss with the other contracting party or parties concerned, or with the contracting parties, the possibility of limiting the subsidization.

ADDITIONAL PROVISIONS

2. The contracting parties recognize that the granting by a contracting party of a subsidy on the export of any product may have harmful effects for other contracting parties, both importing and exporting, may cause undue disturbance to their normal commercial interests, and may hinder the achievement of the objectives of this Agreement.
3. Accordingly, contracting parties should seek to avoid the use of subsidies on the export of primary products. If, however, a contracting party grants directly or indirectly any form of subsidy which operates to increase the export of any primary product from its territory, such subsidy shall not be applied in a manner which results in that contracting party having more than an equitable share of world export trade in that product, account being taken of the shares of the contracting parties in such trade in the product during a previous representative period, and any special factors which may have affected or may be affecting such trade in the product.

4. Further, as from January 1, 1955, or the earliest practicable date thereafter, contracting parties shall cease to grant either directly or indirectly any form of subsidy on the export of any product other than a primary product which subsidy results in the sale of such product for export at a price lower than the comparable price charged for the like product to buyers in the domestic market. Until December 31, 1957, no contracting party shall extend the scope of any such subsidization beyond that existing on January 1, 1955, by the introduction of new, or the extension of existing, subsidies.
5. The contracting parties shall review the operation of the provisions of this Article from time to time with a view to examining its effectiveness, in the light of actual experience, in promoting the objectives of this Agreement and avoiding subsidization seriously prejudicial to the trade or interests of contracting parties.

APPENDIX N: ASSUMED PROGRAM, POLICY AND/OR MARKET CHARACTERISTICS IN SELECTED SCENARIOS

SCENARIOS FOR THE PAST DECADE, 1975-85

Base 1.1

Status quo

General conditions take in all past program, policy and market characteristics (provincial, regional, national and international) of the Canadian hog/pork industry as given, including all stabilization programs that existed, as well as U.S. CVDs on Canadian hogs and pork commodities during relevant subperiods.

Specifications incorporate hog stabilization programs under specific conditions as follows:

- Interaction between the federal ASA and the various provincial programs is taken into account whenever administratively applicable.
- Stabilization payments minus premiums paid to farmers are assumed to be as valuable for hog producers (slaughter hogs and/or piglets) as a net price markup of identical value.
- Percentages of hog and or piglet producers participating in each relevant provincial program are accounted for.
- Stabilization payments are assumed to influence hog farmers' decisions to change or not to change the level of production in the very same insurance coverage subperiods when they are applicable, which is not necessarily when payments are announced nor necessarily when they are paid out and/or received by farmers.

NOSTA 1.1

No intervention

Simulation framework assumes stabilization payments to Canadian hog producers, from any source, are set at zero; U.S. CVDs on Canadian hog and pork commodities exports existing in 1985 are set at zero; and readjustments of Canadian retail price of beef as a result of changes in retail price of pork commodities are calculated, but changes in feedgrain prices in regional Canadian markets which might be induced by variations in animal populations

under such conditions are set at zero (hereafter referred to as the intercommodity pricing conditions).

Salient features compared with status quo include dropping all Canadian stabilization programs that existed and removing U.S. CVDs on Canadian hog and pork commodities.

SUP 1.1

Supply management without international trade

Simulation framework assumes intercommodity pricing conditions (beef, pork, regional feedgrains) are the same as described under NOSTA 1.1. Levels of production in each province for the starting year of this simulation are determined by the percentage of total Canadian production having originated in each province from the beginning of 1970 (first quarter) to the end of 1974 (last quarter). Prices in each province are assumed to be equal to quarterly total costs of production per hundredweight, calculated as follows: for the first quarter of 1986, it is \$78/cwt minus the variable cost of production during the first quarter of 1986 as established according to the cost of production model used under the tripartite federal program (designated as TCCHG3), which equals the margin; for the 1975-85 period, costs are as established for the first quarter of 1986, and then adjusted backward by adding to it the relevant margins appropriately weighted for real price adjustment in quarterly gross national expenses (technically called PGNE3). The mathematical function used is: quarterly cost = TCCHG3 + margin x PGNE3

Hog exports are set at zero, and net pork commodity exports (difference between Canadian exports and Canadian imports) are also set at zero for all foreign countries including the U.S. (Canada was in fact self-sufficient in pork commodities from 1970 to 1974). Mathematical determination of closing stock of pork in eastern Canada under this scenario had to be adjusted to allow equalization of hog commodity exports with hog commodity imports, but no such adjustment was necessary for western Canada. Quarterly hog production is set equal to demand for the same quarter: in fact biological production lags in the hog sector as well as problems in forecasting errorless figures for demand (volume)

both contribute to establish real levels of stocks, which may differ from those simulated. In order to simulate stock variables under such circumstances, one would need at times to adjust the model accordingly. All monetary variables having to do with stabilization programs (receipts, payments, government costs, deficits) are set at zero.

Salient features compared with the status quo include setting exports equal to 0% of national supply, dropping all stabilization programs that existed, removing CVDs on hogs and pork, and setting the price of hogs equal to total costs (reference level is \$78/cwt first quarter 1986).

SUP 2.1

Supply management with net export trade at 10% of national supply cost level

Simulation framework assumptions are the same as under SUP 1.1 except for the following specifications: imports of hogs are set at zero, but exports are set at 10% of national supply; net pork commodity export trade is activated as an endogenous variable and is set equal to 10% of national supply; total production of slaughter hogs is set equal to 111.05% of national demand; average price received by producers is then set as a weighted price equal to 90% of the total cost of production plus an adjustment amount taking into account the U.S.-Canadian exchange rate, the fuel price index, which is set at 149 for the first quarter of 1986, and the cost of transportation, which is set at \$3/cwt for the first quarter of 1986; and slaughtering and processing plants as well as consumers are assumed to pay total production and processing costs.

Salient features compared with the status quo include setting total exports equal to only 10% of national supply, and establishing a national price that is a weighted price of domestic and international sales but with total sales, covering total costs per unit multiplied by total Canadian production, with a reference cost set at \$78/cwt in year 1985.

SUP 9.1

Supply management with net export trade of 10% of national supply and with cost level at \$70/cwt

Simulation framework assumptions and salient features compared with the status quo are the same as for SUP 2.1 except for total costs of production per unit, which are set at \$70/cwt.

SUP 10.1

Supply management with net export trade at 10% of national supply and with cost level at \$85/cwt

Simulation framework assumptions and salient features compared with the status quo are the same as for SUP 2.1 except for total costs of production per unit, which are set at \$85/cwt.

SUP 3.1

Supply management with net export trade at 25% of national supply and with Canadian weighted price at \$78/cwt in 1985

Simulation framework assumptions are the same as under SUP 2.1 except for the following specifications: both net exports of pork from western Canada to countries other than the U.S. and net exports of pork from western Canada to the U.S. are endogenized; the former is set at 10% of production, while the latter is set at 15%, for a combined total of 25% of regional production; total Canadian production of hogs is set at 1.33 multiplied by national demand; and assumptions concerning national and international price levels remain the same but the weighting factors are changed to 0.75 and 0.25, respectively, instead of 0.9 and 0.1.

Salient features compared with the status quo include setting total exports equal to 25% of national supply, which is about the same level as that reached in recent years, and establishing a national price that is a weighted price of domestic and international sales, but with total sales covering total costs per unit of \$78/cwt multiplied by total Canadian production.

SUP 4.1

Supply management with net export trade at 25% of national supply and with Canadian price equal to U.S. price

Simulation framework assumptions are the same as for SUP 3.1 except for the Canadian weighted price, which is the U.S. price expressed in Canadian dollars minus \$3/cwt for the cost of transportation multiplied by an adjusted index price of fuel for transportation.

Salient features compared with the status quo make it seem a little far from being a realistic scenario, since it implies that Canadian producers will produce enough to meet total market demand at this North American price,

whatever the cost levels and/or changes thereof. These underlying assumptions are therefore questionable.

SCENARIOS FOR THE FORECAST PERIOD, FIRST QUARTER 1986 TO FIRST QUARTER 1991

BASE 2.1

Status quo

General conditions take in all present program, policy and market characteristics (provincial, regional, national and international) of the Canadian hog/pork industry as given, including all stabilization programs that now exist, as well as U.S. CVDs on hogs.

Specifications incorporate the following assumptions:

- Alberta, Quebec and British Columbia do not join in the federal tripartite program while retaining their own provincial stabilization programs.
- Premiums collected under the piglet and the slaughter hog programs in Quebec as well as those pertaining to the British Columbia program are preestablished to reach a zero cumulative deficit during the first quarter of 1991.
- For the Atlantic provinces, the fixed rules under which the values of the premiums are established are retained, which implies that the rules under which the present cumulative deficit happened (which is already fairly large) are left as they are.
- Manitoba is considered to join in the federal tripartite program during the third quarter of 1986, after keeping its own provincial program in operation until the second quarter of 1986. The government of Manitoba is assumed to swallow up whatever cumulative deficit might then exist but the public expenses then incurred are not added up to the other costs of the hog stabilization program to Manitoba government.
- Saskatchewan is considered to join in the federal tripartite program while going through a provincial program phasing out process. More precisely total payments received by Saskatchewan hog producers from the first quarter of 1986 on are assumed to be determined according to a phasing out parameter

multiplied by the difference between the provincial payment and the tripartite payment plus the tripartite payment, where the phasing out parameter adopts the following schedule:

0.9 in 1986	0.3 in 1989
0.7 in 1987	0.1 in 1990
0.5 in 1988	0.0 in 1991

Given the administrative arrangements which were made by the Saskatchewan government, premiums paid by the producers for the provincial program are set at a level which assumes that the cumulative deficit of the provincial program having added up by the first quarter of 1991 would be approximately equal to that existing at the end of the last quarter of 1985. Saskatchewan hog producers are therefore assumed to pay two premiums for stabilization, one for the provincial program and one for the federal tripartite program throughout the forecast period.

- In Alberta and Ontario, the pending ASA program is assumed to be replaced by a federal tripartite program. Moreover, the Alberta Feed Grain Market Adjustment Program is assumed to have a likely lagged effect on provincial hog production by the first quarter of 1987. However, the existence of this program is not assumed to have a significant impact on the calculation of the tripartite national cash costs of production for hogs.
- Premiums paid for participating in the tripartite program are assumed to start being collected during the third quarter of 1986. The level of the premium is preestablished on the basis of the expected surplus and/or deficit of the tripartite program at the end of the first quarter of 1991, each participating province being then responsible for 90% (guaranteed margin) of this residual. The guaranteed margin set up for provinces is phased down during the forecast period according to the following schedule:

0.95 in 1986	0.92 in 1989
0.94 in 1987	0.91 in 1990
0.93 in 1988	0.90 in 1991

CVDPORK1

Status quo plus reestablishment of U.S. CVDs on Canadian pork

Simulation framework assumptions are the same as for Base 2.1 except for the U.S. CVD on Canadian pork commodities shipped to the U.S., which is set at \$5.50/cwt from the first quarter of 1986 to the third quarter of 1987, and then at \$4.40/cwt until the first quarter of 1991.

Salient features compared with the status quo include reactivating U.S. CVDs on Canadian pork commodities during the forecast period at the same level as the U.S. CVDs on Canadian hogs as of the first quarter of 1986.

FULLTRI1

Full tripartite and U.S. CVDs on hogs

Simulation framework assumptions are that all provinces will join in the tripartite program under specific conditions as follows:

- For British Columbia and all Atlantic provinces, all exogenous and endogenous variables having to do with the relevant provincial programs are set equal to zero as of the beginning of the first quarter of 1986. This implies that production in 1986 in these provinces is subject to the lagged impact of payments made by the relevant provincial program in 1985. Cumulative deficits of these provincial programs are assumed to be swallowed up by provincial governments concerned, but related expenses are not added up to other costs of the relevant provincial hog stabilization programs, as already stated.
- The fiscal year for government accounting goes from the beginning of the quarter to the end of the next year's first quarter in Quebec. For this reason the pragmatic assumption is made that, if Quebec joins in the tripartite program, it would not be activated before the second quarter of 1986. Thus it is assumed that Quebec hog and piglet stabilization programs would continue to have a lagged impact on provincial hog and piglet production until the end of the first quarter of 1987. Both Quebec programs (piglets and slaughter hogs) are assumed to be replaced by the tripartite program since, under present conditions, access to the latter seems to be conditional upon such a requirement. All exogenous and endogenous variables having to do with both Quebec stabilization programs are set equal to zero as of the beginning of the second quarter of 1986. Cumulative deficits of Quebec programs are assumed to be swallowed up by the Quebec government, but related expenses are not added up to other costs of these programs.
- In Manitoba, it is already assumed under status quo conditions that the tripartite program would replace Manitoba's program from the beginning of the third quarter of 1986 on. In the present scenario, the starting date set for Manitoba joining in the tripartite program is established from the beginning of the first quarter of 1986 on, Manitoba's government swallowing up the cumulative deficit added up until the end of the last quarter of 1985, but without imputing such costs to the relevant provincial program.
- In Saskatchewan, the phasing out parameters otherwise assumed under the scenario CVDPORK1 for 1986-91 and the provincial stabilization programs are eliminated as soon as the beginning of the first quarter of 1986, and only the tripartite program remains operational. The provincial program deficit accumulated until the end of the fourth quarter of year 1985 falls under the responsibility of the provincial government but without being imputed to the overall costs of the provincial stabilization program.
- The proportion of hog producers likely to participate in the tripartite program in Quebec, the Atlantic provinces and British Columbia is established at 90%, as in the other provinces.

Salient features compared with the status quo include activating the federal tripartite program in all provinces as of the beginning of the first quarter of 1986, thereby replacing all provincial hog and/or piglets stabilization programs under specific conditions concerning the lagged impact of terminating provincial programs on provincial production of slaughter hogs in 1986. However, U.S. CVDs on Canadian hogs are assumed to continue to exist under the same conditions as under the status quo scenario.

NOSTA 2.1

No intervention

Simulation framework assumptions incorporate the end of hog stabilization programs in Canada under specific conditions, which are as follows:

- Both provincial and federal governments are assumed to have eliminated all their hog stabilization programs as early as the end of the second quarter of 1985, that is, when the U.S. CVDs were announced. But existence of U.S. CVDs is assumed to have lasted until the end of the expected lagged impact of such programs in Canadian production, namely until the end of the first quarter of 1986.
- Some provincial programs such as the Alberta Feed Grain Market Adjustment Program are assumed not to exist.
- All exogenous and endogenous variables having to do with hog stabilization programs in Canada are set at zero for the whole forecast period.

SUP 5.1

Supply management without international trade

Simulation framework assumptions are the same as under SUP 1.1 with the exception of the provincial shares assumption; levels of production in each province for the starting forecast year 1986, for this simulation, are determined by the percentage of total Canadian production having originated in each province from the beginning of the first quarter in 1981 to the end of the last quarter in 1985.

Salient features compared with the status quo include setting exports equal to 0% of national supply; dropping all past stabilization programs; removing U.S. CVDs on hogs; and setting the price of hogs equal to total costs, whatever their levels.

SUP 6.1

Supply management with net export trade at 10% of national supply and with cost level starting at \$78/cwt

Simulation framework assumptions are the same as under SUP 2.1 with the exception of the provincial shares assumption, which is the same as under SUP 5.1.

Salient features compared with the status quo include setting total exports equal to only 10% of national supply, and establishing a national price that is a weighted price of domestic and international sales, but with total sales covering total costs per unit multiplied by total Canadian production, with a starting reference cost for 1986 set at \$78/cwt.

SUP 11.1

Supply management with net export trade at 10% of national supply and with cost level starting at \$70/cwt

Simulation framework assumptions and salient features compared with the status quo are the same as for SUP 6.1 except for total costs of production per unit, which are set at \$70/cwt for the starting forecast year 1986. Exports are assumed to be shipped from eastern Canada.

SUP 12.1

Supply management with net export trade at 10% of national supply and with cost level starting at \$85/cwt

Simulation framework assumptions and salient features compared with the status quo are the same as for SUP 6.1 except for total costs of production per unit, which are set at \$85/cwt for the starting forecast year 1986.

SUP 7.1

Supply management with net export trade at 25% of national supply and with Canadian weighted price equal to total costs per unit

Simulation framework assumptions and salient features compared with the status quo are the same as under SUP 3.1, except for export shipments, which are then assumed to originate in eastern Canada.

SUP 8.1

Supply management with net export trade at 25% of national supply and with Canadian price set equal to U.S. price

Simulation framework assumptions and salient features compared with the status quo are the same as under SUP 4.1 except for export shipments, which are then assumed to originate in eastern Canada.

APPENDIX O: INDEXING CANADIAN TO U.S. PRICES: A POINT OF VIEW FROM THE MANITOBA BOARD, AUGUST 1985

RATIONALE

Provincial hog marketing boards and commissions were established in the late 1950s and 1960s in Ontario, Manitoba, Alberta and Saskatchewan. During the intervening years, agencies were also established in the Maritime provinces and recently in British Columbia. Several attempts were made in Quebec, but to date a similar type organization has not materialized.

A major function of the original agencies was to provide an assembly and sales service by establishing market prices on a provincial basis. With the passage of time and rationalization and with closures in the meat packing industry, the actual sales and market function has been severely diminished so that in 1985 there are really only two markets in Canada. A daily sales service is conducted by the Ontario Pork Producers' Marketing Board in Toronto and the Manitoba Hog Producers' Marketing Board in Winnipeg. Hog prices in Saskatchewan, Alberta and British Columbia, for all intents and purposes, are established by formula, based on the Winnipeg market. Similarly, market prices in Quebec and the Maritime provinces are established on some type of formula relating to the Ontario market. Obviously, when so-called supply and demand factors affect the two price-setting markets, the impact is felt in all regions in Canada.

During the 1960s and 1970s, there was relative equality in the supply and demand for hogs and pork products in Canada, interspersed with periods of surplus and deficits, offset by exports and imports to and from the U.S. and by exports to Japan. With relative free trade between Canada and the U.S., the Canadian market was established with a fairly tight relationship with the U.S. due to its dominant size.

In late 1982 and early 1983, the relative strength of U.S. currency, vis-à-vis the Canadian dollar, became a very dominant factor, compounded in 1984 and 1985 by increased supplies in Canada; decreased effective merchandising capacity of the Canadian packinghouse industry;

sharp increase in live hog and pork exports to the U.S.; NPPC countervailing action; competition in export markets; and, most recently, the effect of subsidized imports from the EEC.

All of the above and other factors have resulted in a Canadian hog price that is obviously not sufficient to make a meaningful contribution to producers' cost of production. Provincial and federal hog income stabilization plans have been utilized as a means to partially overcome the problem. They may or may not be the answer in view of their cost and reaction to them by the U.S.

As a further option to maintaining the status quo or to considering a national supply management program, may we suggest a new concept of a formula-based Canadian hog price, possibly established under the Farm Products Marketing Agencies Act?

The concept is to establish a minimum national hog price for Canada, based on the U.S. market. This could be Omaha or the U.S. 7-Market average on a one-week-delayed basis. We have maintained for years that Canadian hog prices are basically a reflection of the U.S. market, so, in this concept, we are saying to truly tie ourselves to that market.

The attached worksheet (Table O.1) is self-explanatory as a visual summary of the concept tabulated on a monthly basis (not delayed).

In column 7 the Canadian formula price has been adjusted downward to reflect the approximate percentage of Canadian supplies exported to the U.S. (20%) at a dressed weight of \$8/cwt. In this sense, we would be pricing hogs in Canada similar to that in the U.S. for pork supplies utilized for domestic consumption.

Note the sharp increase in the monthly differential between the Winnipeg and Omaha market during the period under review. This is no doubt a reflection of Canada's relative surplus production; less than competitive Canadian packinghouse industry in comparison to the U.S. Basically, the total of Canada's supply has been priced at the residual of the U.S. market, not just the percentage that is exported. In contrast, the "formula concept" incorporates at least a partial "two price" system.

TABLE 0.1 FORMULA INDEXING OF CANADIAN HOG PRICES TO U.S. PORK PRICES

	Winnipeg Index 100 hog price (1)	Omaha hog price, live (2)	Omaha price, dressed weight equivalent (3)	Can/U.S. exchange rate (4)	Omaha hog price, dressed (5)	Differential Omaha/Winnipeg (6)	Formula price (7)
	(Can \$/cwt)	(U.S. \$/cwt)			(Can \$/cwt)		
1983							
January	79.54	57.97	73.38	1.2287	90.16	10.62	88.55
February	83.14	58.74	74.36	1.2263	91.17	8.03	89.56
March	75.20	51.67	65.41	1.2250	80.12	4.92	78.51
April	68.37	48.47	61.35	1.2354	75.79	7.42	74.18
May	69.02	47.95	60.70	1.2265	74.44	5.42	72.83
June	66.67	46.70	59.11	1.2324	72.84	6.17	71.23
July	64.62	47.00	59.49	1.2316	73.26	8.64	71.65
August	67.80	50.41	63.81	1.2342	78.75	10.95	77.15
September	68.31	46.63	59.03	1.2330	72.78	4.47	71.17
October	61.59	41.18	53.39	1.2316	65.75	4.16	64.14
November	57.17	39.70	50.25	1.2360	62.10	4.93	60.50
December	62.37	47.76	60.46	1.2469	75.38	13.01	73.77
1984							
January	65.60	50.88	64.41	1.2477	80.36	14.76	78.75
February	65.51	48.01	60.77	1.2486	75.87	10.36	74.27
March	64.74	47.19	59.73	1.2715	75.94	11.20	74.33
April	68.47	49.14	62.20	1.2793	79.57	11.10	77.96
May	70.22	48.55	61.46	1.2932	79.48	9.26	77.88
June	72.35	50.96	64.51	1.2990	83.79	11.44	82.18
July	77.86	54.63	69.15	1.3247	91.60	13.74	90.00
August	77.84	53.26	67.42	1.3049	87.97	10.13	86.36
September	73.20	48.34	61.19	1.3184	80.67	7.47	79.06
October	67.17	45.23	57.25	1.3176	75.43	8.26	73.82
November	70.23	48.71	61.66	1.3157	81.12	10.89	79.51
December	71.66	51.29	64.92	1.3176	85.53	13.87	83.92
1985							
January	69.79	50.14	63.47	1.3225	83.93	14.14	82.33
February	71.64	50.52	63.95	1.3404	85.71	14.07	84.11
March	67.93	45.19	57.20	1.3822	79.06	11.13	77.45
April	59.30	42.42	53.70	1.3649	73.29	13.99	71.68
May	60.51	42.98	54.41	1.3749	74.80	14.29	73.19
June	64.97	46.55	58.92	1.3675	80.57	15.60	78.96
July	68.44	48.65	61.58	1.3524	83.28	14.84	81.67
August	63.13	44.40	56.20	1.3552	76.16	13.03	74.56
September	64.26	40.95	51.83	1.3628	70.63	6.37	69.03
October	68.01	44.45	56.26	1.3664	76.87	8.86	75.27
November	66.88	44.94	56.88	1.3739	78.14	11.26	76.54
December	70.01	47.79	60.49	1.3920	84.20	14.19	82.60
1986							
January	67.91	46.85	59.30	1.4026	83.17	15.26	81.57
February	69.55	45.54	57.65	1.4083	81.18	11.63	79.58

NOTES

CHAPTER 1

- 1 A technical description of the FARM model can be found in a series of publications having the general title *FARM: Food and Agriculture Regional Model*, from January 1980 on, which are available from the Policy, Planning and Economics Branch of Agriculture Canada in Ottawa. The use of the FARM model for the study of stabilization issues is intensively discussed by Cluff and Huff (1986).

CHAPTER 2

- 1 See Hayenga et al (1985) for a detailed and in-depth analysis of the U.S. sector. Other important aspects are covered by Nelson and Van Arsdall (1984) and by Van Arsdall and Gillian (1979). See also Van Arsdall and Nelson (1985) for a thorough analysis of costs of production in U.S. hog production under present conditions.
- 2 See The Future of the Industry Committee (1983); see also Hedlin Menzies and Associates Ltd. (1969) and Kerr (1968).
- 3 See also Kerr (1968) for an earlier version of this view.

CHAPTER 3

- 1 See Cooper (1986) and Fisher (1986) for Agriculture Canada; DRIE (1984); The Future of the Industry Committee (1983) for the Ontario situation; and Voisard (1984) for the Quebec situation. See also Deloite, Haskins and Sells, Associates (1984): in this study, medium scale is defined as 240 head per hour, 9 000 head per week or 450 000 head per year, while large scale is defined as 600 head per hour, 22 500 head per week or 1 125 000 head per year. In 1981 there were fewer than five plants of the latter size in Canada.
- 2 See Statistics Canada, cat. no. 31-203, and the U.S. Department of Labor. See also Deloite, Haskins and Sells, Associates (1984).
- 3 See Carter and Chadee (1986) for a discussion of relevant multiplier effects.

CHAPTER 4

- 1 For a statement of reasons for this action, see Tribunal Antidumping Canada, Public Hearing, June 25-29, 1984: "Canned ham and canned picnic under 1.5 kg per can, originating in or exported from Denmark and The Netherlands; and canned pork-based luncheon meat containing more than 20% by weight of pork, in respect of which a subsidy has been paid directly or indirectly by the European Economic community."
- 2 The oversimplified diagrammed presentation sketched out in Appendix E draws heavily from Martin (1981).
- 3 See also Hay and Lovatt (1984). The information presented in Appendix F was compiled from correspondence material from the Canadian Embassy in Tokyo and from Hausamann (1980). For a broader framework, see also Talbot and Kahl (1982). See also a briefing note from the Department of External Affairs, Japanese Pork Import System, Revised as of April 1, 1984.
- 4 Legally, under GATT, the terms "countervailing duty" are understood by member countries to mean a special duty level for the purpose of offsetting any bounty or subsidy determined to have been granted, directly or indirectly, upon the manufacture, production or export of any merchandise.
- 5 This information is based on an unpublished briefing note from the Canadian Pork Council.
- 6 See also various unpublished briefing notes on EEC pork trade from the Department of External Affairs, 1986.
- 7 See "U.S.-Eastern Canada Hog Price Transmission" equations in Agriculture Canada's FARM model used in this study for further details on the logarithmic calculation of this function and the way in which its underlying assumption is introduced in the model.
- 8 See also unpublished papers from Agriculture Canada's Program Coordination Directorate, Research Branch, "National Swine Research Program Review," April 1985, and from the Quebec government, "Background Document on Research Branch Swine Production Program," April 1985.

- 9 These estimates of federal expenditures include operation (recurring charges) and capital for animal research, but excludes administration and support costs.
- 10 We dare to suggest that very serious attention ought to be paid by the various groups genuinely concerned about all development aspects of Canada's hog/pork industry to the forthcoming conclusions of a study currently being conducted on this matter. Profitability of public agricultural research in Canada is the theme of a research study currently being conducted by Prof George Brinkman of the University of Guelph.

CHAPTER 5

1 This section draws most heavily on a background study conducted by Agriculture Canada having the title "Interprovincial Movement of Hogs and Pork," July 1988. Hypotheses used in this Agriculture Canada draft report were retained throughout the present study to obtain indirect estimates of pork and/or hog trade flows between provinces. A parallel estimate has recently been published by Carter and Chadee (1986). Their results are fully in line with those reported in the former source.

2 According to various reports from Agriculture Canada and Statistics Canada.

3 See Agriculture Canada, Regional Development Branch, Ottawa, "A Review of the Government of Newfoundland and Labrador's Service Industry Policies and Programs," July 1985; "A Preliminary Assessment of the Market for Newfoundland Pork Products," May 1985; and "A Summary of the Assessments Conducted on Aspects of Newfoundland's Swine Industry," July 1985. See also Prince Edward Island Department of Agriculture, Charlottetown, "P.E.I. Swine Incentive Policy," March 1985. See also Agriculture Canada, Regional Development Branch, Agriculture and Development Nova Scotia, Ottawa, "The Impact of the Agri-Food Industry on Nova Scotia Economy," 1985. See also Pork Producers' Association of Nova Scotia, "Position Paper," provincial position paper prepared for the special Canadian Pork Council Meeting on Stabilization Policy, Halifax, February 1985. See also Agriculture Canada, Regional Development

Branch, Agriculture and Food Development Nova Scotia, Ottawa, "The Red Meat Industry in the Maritimes 1984-1990," working paper, December 1984.

- 4 The Quebec Market Hogs Stabilization Program is a plan providing for the Quebec Producers' Federation (Fédération des producteurs de porcs du Québec) to negotiate the conditions for marketing slaughter hogs, which was put into place by the Quebec government in 1980. The plan originally provided the producers' federation with the authority to negotiate on behalf of producers the prices and conditions of sale as well as other aspects of the marketing process.
- 5 See also notes and excerpts of Manitoba Hog Producers' Marketing Boards to the Canadian Pork Council, 1985 and 1986.

CHAPTER 6

- 1 See also CPC (1985), "Canadian Pork Council response to the U.S. Department of Commerce Questionnaire Relating to the Countervailing Duty Investigation into Canadian Hogs and Pork," and Martin T. Rice, Canadian Pork Council, Ottawa, supplementary information provided.
- 2 Certain classes of hogs and certain small slaughterers are exempt.
- 3 The service charge is limited by regulation to 1-1/4% and is varied by the board to yield an income sufficient to cover costs. This pays for operation of market yards, selling, settlement, organization, research and product promotion.

CHAPTER 7

- 1 It should be noted that the parity formula referred to by the Canadian Federation of Agriculture was defined as a formula that would provide "fair relationship prices" for Canadian farmers. Fair relationship meant that prices should bear some relationship to production costs. For example:
- average hog price for 1925-29 = \$10/cwt
 - index of farm costs 1925-29 = 100
 - index of farm costs in 1955 = 180
 - fair relationship (parity) price for hogs in 1955 = $180/100 \times \$10 = \$18/\text{cwt}$

CHAPTER 8

- 1 For more information on these policies and programs, see CPC (1985), Christie and Dakers (1985), Gilson (1985), USITC (1985a), and Ken Agra Management Services (1981).

CHAPTER 11

- 1 One of the best illustrations of the basic functions of a "primitive" economic society may be found in Radford (1951).
- 2 Gregory and Stuart (1981) make the following observation about the preparation of the annual plan in the USSR:

Industrial supply and distribution plans compiled by GOSPLAN have been known to total 70 volumes of almost 12 000 pages and to deal with well over 30 000 commodities. (pp. 122-23)

- 3 The alternatives to the competitive price system as a coordinating mechanism for a series of interdependent markets are vertical integration and contracting. Trifon (1961) describes vertical integration as the coordination of decision-making processes of two or more stages of production through ownership or financial control by one company of separate establishments in complementary industries. This definition appears to have particular relevance to a large part of the hog industry in the province of Quebec.
- 4 For more information on hog marketing, see Manitoba, Legislative Assembly (1964), Bishop (1977), Poetschke (1960), Kenyon (1958), and Poetschke and MacKenzie (1956).

CHAPTER 12

- 1 This chapter draws heavily from a former publication on the topics. For more detail, see Gilson (1982).
- 2 See *Report of the Royal Commission on Price Spreads of Food Products*, Vol. 3, March 1960; *Final Report of the Cooperative Union of the Ontario Commission on Relationships between Cooperatives and Marketing Boards*, 1961; and Manitoba, Legislative Assembly (1964).

CHAPTER 16

- 1 See also Cluff and Huff (1986), Chapter 8: Models and the Evaluation of Stabilization Schemes, comments by Gerry B.H. Parlby, Brian Paddock, William H. Meyers and Stanley R. Johnson, and Charles Gracey.

CHAPTER 22

- 1 The recently imposed (as of the end of October 1986) 0.22% general U.S. surtax on most U.S. imports was not taken into account in this scenario.

CHAPTER 23

- 1 Removal of the recently imposed (as of the end of October 1986) 0.22% general U.S. surtax on most U.S. imports was not included in this assumption.

APPENDIX C

- 1 Column 1 rates of duty are applicable to imported products from all countries except those Communist countries and areas enumerated in general headnote 3(f) of the TSUS, unless special tariff treatment is afforded to articles that are the product of designated countries.
- 2 Rinderpest and foot-and-mouth diseases are highly contagious, infectious diseases which can afflict cloven-footed animals (cattle, sheep, hogs, deer, and so forth). Because the diseases are so easily transmitted and debilitating, they are a threat to the U.S. livestock industry.

APPENDIX H

- 1 Customs duties are established for most categories of pork imported into the EC; however, when variable levies are in effect, duties are usually not applied.
- 2 This amount is considered to be 4.2 kilograms of grain composed as follows: barley (40%); corn (20%); oats (10%); and sorghum (10%). *Official Journal of the European Communities*, November 1, 1975, p. 21.
- 3 Agra Europe (London), Ltd., *Agra Europe*, No. 1133, May 17, 1985, p. P/iii.

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